COMPENDIUM OF MS4 PERMITTING APPROACHES

PART 1: SIX MINIMUM CONTROL MEASURES

Office of Wastewater Management
Water Permit Division
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SIX MINIMUM CONTROL MEASURES

This compendium document is intended as a companion resource to help illustrate the types of permit provisions that may qualify as "clear, specific, and measurable" requirements under the final MS4 General Permit Remand Rule consistent with 40 CFR 122.34(a).

EPA notes that this compendium is intended to serve as a snapshot of permit provisions. EPA anticipates that as permits are reissued in the coming months and years, the information in this compendium will need to be updated to include newer examples or modified information. EPA has an interest in ensuring the accuracy of the information contained in this document, and therefore welcomes input on any aspect of this compendium at any time. The Agency will update the compendium as needed based on the comments received. EPA notes that the inclusion of any particular permit example should not be read as an Agency endorsement of the entire approach taken in that permit, nor should it be read as EPA's independent determination that the permit terms meet the Phase II MS4 requirement "to reduce the discharge of pollutants from [the] MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act."

In addition, this document does not impose any new legally binding requirements on EPA, states, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. EPA made every attempt to ensure the accuracy of the examples included in this document; however, in the event of a conflict between this compendium and any statute, regulation, or permit, the statute, regulation or permit controls. For more information about the NDPES Stormwater Program visit www.epa.gov/npdes/stormwater.

Note about examples included: EPA included excerpts of permit provisions that include "clear, specific, and measurable" requirements. Permit requirements that are more general and are not specific or measurable are not included. Excerpts of the actual permit language are included in 11 pt Times New Roman font, with "clear, specific, and measurable" requirements highlighted in gray (for emphasis). To view any of the excerpted provisions in the context of the entire permit, use the links below to access any of the specific general permits.

Permit excerpts are included from the following small MS4 general permits:

State Small MS4 General Permit	Effective/Issuance Date	Expiration Date
Arkansas	August 1, 2014	July 31, 2019
California	February 5, 2013	June 30, 2018
Colorado	July 1, 2016	June 30, 2021
Connecticut	July 1, 2017	June 30, 2022
Georgia	December 6, 2012	December 5, 2017
Maine	July 1, 2013	June 30, 2018

State Small MS4 General Permit	Effective/Issuance Date	Expiration Date
Maryland	April 14, 2003	[expired]
Massachusetts	July 1, 2017	June 30, 2022
Minnesota	August 1, 2013	July 31, 2018
Montana	January 1, 2015	December 31, 2016
New Jersey	March 1, 2009	[expired]
New Mexico (Middle Rio Grande)	December 11, 2015	December 19, 2019
New York	May 1, 2015	April 30, 2017
Ohio	September 11, 2014	September 10, 2019
South Carolina	January 1, 2014	December 31, 2018
Tennessee	October 1, 2016	September 30, 2021
Texas	December 13, 2013	December 12, 2018
Utah	February 26, 2016	February 28, 2021
Vermont	December 5, 2012	December 5, 2017
Virginia	July 1, 2013	June 30, 2018
West Virginia	July 11, 2014	August 11, 2019
Western Washington[1]	August 1, 2012	July 31, 2018
Wisconsin	May 1, 2014	April 30, 2019

[1] The Western Washington Phase II MS4 permit has requirements for Permittees and Secondary Permittees. A "Secondary Permittee" is an operator of a regulated small MS4 that is not a city, town or county. Secondary Permittees include special purpose districts and other MS4s that meet the criteria for a regulated small MS4. This document summarizes Permittee requirements only.

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Public Education and Outreach

Vermont – Part IV.H.1

Requires permittees to maintain a stormwater website and participate in regional stormwater outreach program, or develop its own program.

… At a minimum, the permittee must:

(1) maintain on its own or in cooperation with other small MS4s a web site with locally relevant stormwater management information and promote its existence and use, and:

(2) participate in the regional stormwater education and outreach strategy described in the March 10, 2008 memorandum of agreement between designated small MS4s, the Chittenden County Regional Planning Commission and the Vermont Agency of Natural Resources, or subsequent amendment approved by the Secretary, or

…

(5) Undertake the following activities:

(a) Develop or acquire informational brochures relevant to local stormwater concerns.

(b) Distribute stormwater related brochures at least twice in the first year and once in subsequent years. Distribution must be town-wide for municipalities. Non-traditional small MS4s must distribute such materials to those who routinely use their facilities.

(c) Seek the cooperation of the local news media to run two or more stormwater-related news or feature stories per year.

(d) For municipalities: develop elementary, middle school or high school education materials or curricula regarding local stormwater concerns based on new or existing material; conduct teacher training in at least 4 schools and in each subsequent year maintain program information and hold at least one refresher teacher training course.

(e) For nontraditional small MS4s: Develop and implement public education campaigns (in addition to the brochure distributions) reasonably designed to educate frequent facility users.

Western Washington – S5.C.10

Requires permittees to educate target audiences and best management practices (BMP) pre-selected by permitting authority.

The minimum performance measures are:

a. Each Permittee shall provide an education and outreach program for the area served by the MS4. The program shall be designed to educate target audiences about the stormwater problem and provide specific actions they can follow to minimize the problem.

i. To build general awareness, Permittees shall select from the following target audiences and subject areas:

(1) General public (including school age children), and businesses (including home-based and mobile businesses)

- General impacts of stormwater on surface waters.
- Impacts from impervious surfaces.

- Impacts of illicit discharges and how to report them.
- Low impact development (LID) principles and LID BMPs.
- Opportunities to become involved in stewardship activities.

(2) Engineers, contractors, developers and land use planners

- Technical standards for stormwater site and erosion control plans.
- LID principles and LID BMPs.
- Stormwater treatment and flow control BMPs/facilities.

ii. To effect behavior change, Permittees shall select from the following target audiences and BMPs:

(1) General public (which may include school age children), businesses (including home-based and mobile businesses)

- Use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials.
- Equipment maintenance.
- Prevention of illicit discharges.

(2) Residents, landscapers and property managers/owners

- Yard care techniques protective of water quality.
- Use and storage of pesticides and fertilizers and other household chemicals.
- Carpet cleaning and auto repair and maintenance.
- Vehicle, equipment and home/building maintenance.
- Pet waste management and disposal.
- LID principles and LID BMPs.
- Stormwater facility maintenance.
- Dumpster and trash compactor maintenance.

…

c. Each Permittee shall measure the understanding and adoption of the targeted behaviors for at least one target audience in at least one subject area. No later than February 2, 2016, Permittees shall use the resulting measurements to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors. Permittees may meet this requirement individually or as a member of a regional group.

Maine – IV.H.1.a.

The permit requires a BMP Adoption Plan to target at least 15% adoption of the targeted BMPs within five years.

iii. Targeted BMP Adoption: Beginning July 1, 2013, the permittee shall continue outreach efforts from the previous MS4 General Permit while developing or revising a new BMP Adoption Plan.

1. By January 15, 2014, each permittee or stormwater group of which the permittee is a member shall have a new or revised Adoption Plan with the goal of promoting behavior change through the implementation of BMPs. Each permittee or stormwater group shall select at least one specific BMP to target for a focused outreach Plan. In order to facilitate statewide consistency and efficient use of resources, permittees may

work collaboratively to develop and implement a Statewide BMP Adoption Plan that allows for regional flexibility.

The permittee shall target at least 15% of the segmented audience to adopt the targeted BMPs.

2. By November 1, 2013, the permittee shall submit the draft BMP Adoption Plan to the Department for review and approval. The BMP Adoption Plan is considered approved as of January 15, 2014, unless the permittee receives written communication from the Department indicating non-approval. The permittee shall begin implementation of the BMP Adoption Plan within one week of its approval.

The BMP Adoption Plan must identify:

a) The BMP
b) The target audience
c) The outreach tool(s) to be used
d) The message
e) The distribution system
f) The time line and implementation schedule
g) The person(s) responsible for implementation
h) An impact evaluation protocol
i) A plan modification protocol (this must include DEP approval of significant plan modifications)
j) The goal (e.g. the target level BMP adoption for each audience)

NOTE: For example, if 10% of dog owners are picking up pet waste in public parks, then in five years the permittee will seek to raise the percentage of dog owners picking up pet waste and disposing of it in the trash to 25% in public parks. Or if 50% of the homeowners are using weed & feed lawn care chemicals, seek to reduce the number to 35%.

New Jersey – Part IV.F.4 & Attachment E

The permit specifies that the public education program must achieve a certain number of points that have been assigned to a variety of department-approved activities described in Attachment E of the permit.

a. Local Public Education Program

…

i. Minimum Standard - Tier A Municipalities shall annually conduct educational activities that total a minimum of 10 points. Each approved activity is listed and has been assigned a point value in Attachment E of the permit.

ii. Measurable Goal - Tier A Municipalities shall certify annually that they have accumulated the number of points required to meet the Local Public Education Program minimum standard. Exact dates (e.g., month, day, year) and details of each educational activity (e.g., photos of the mural) shall be reported to the Department in the Annual Report.

Attachment E - Local Public Education Approved Activities and Point Totals

A. Tier A Municipalities shall conduct educational activities that total a minimum of 10 points annually. Each approved activity is listed below with an assigned point value.

Public Education and Outreach

1. School Presentations - Present educational classes/assemblies to local elementary, middle, and/or high school classes. (1 point per visit / maximum of 5 points per year)
2. Website – Maintain a stormwater related page on the municipal website and include a link to www.cleanwaternj.org. (1 point)
3. Stormwater Display – Present a stormwater related display and materials at any municipal event (e.g., Earth Day, town picnic) or maintain a display at the municipal building (2 points)
4. Giveaway – Distribute an item with a stormwater related message (e.g. refrigerator magnets, temporary tattoos, bookmarks, coloring books, and pens or pencils). Municipality must purchase a minimum number of the item equal to 10% of the municipal population. (2 points)
5. Citizen Stormwater Advisory Committee – Establish a subcommittee to the Environmental Commission to identify, coordinate and implement stormwater related programs. (2 points)
6. Utilize Department Materials - Use Department created stormwater education materials, which can be found on www.cleanwaternj.org to publish an ad in a newspaper that serves the municipality; broadcast a radio or television commercial on a local radio or municipal public service channel; produce a billboard or sign which can be displayed on a bus, bus stop shelter, or at a recreation field (outfield sign). (2 points each / maximum of 4 points per year)
7. Poster Contest – Organize a poster contest with a local school district. Poster themes shall have an appropriate stormwater message. Posters are to be displayed at buildings within the municipality such as at the town hall, library, or school. (2 points)
8. Stormwater Training for Elected Municipal Officials – Conduct a program for all elected municipal officials which educates them on the Stormwater Management Rules (N.J.A.C. 7:8), Tier A Permit and what steps the municipality has already taken to minimize stormwater pollution. (3 points)
9. Mural – Facilitate the planning and painting of a stormwater pollution themed mural at a local downtown/commercial area. (3 points)
10. Mailing – Distribute any of the Department's educational brochures, tip cards, or a municipally produced equivalent (e.g, calendar, recycling schedule), to every resident and business in the municipality. (3 points)
11. Partnership Agreement / Local Event - Identify and enter into a partnership agreement with a local group such as a watershed organization, Riverkeeper, school, youth/faith based group and/or other nonprofit to carry out a minimum of two (2) watershed stewardship/education activities (e.g., litter march, stream/beach cleanup). (3 points)
12. Ordinance Education – Distribute a letter from the mayor to every resident and business in the municipality highlighting the requirements and environmental benefits of the Pet Waste, Litter, Improper Disposal of Waste, Wildlife Feeding, Yard Waste, Illicit Connection, Refuse Container, and Private Storm Drain Inlet Retrofitting Ordinances. This letter/article must also reference a page on the municipal website (if applicable) to which residents can go to read these ordinances. (5 points)

    * Posting these ordinances does not constitute the development of a website referenced above.

Ohio – Part III.B.1.c

The permit quantifies the percentage of the permittee's population that the public education program must reach.

c. Performance Standards. Your storm water public education and outreach program shall include more than one mechanism and target at least five different storm water themes or messages over the permit term. At a minimum, at least one theme or message shall be targeted to the development community. Your storm water public education and outreach program shall reach at least 50 percent of your population over the permit term.

California – Part E.7.a.ii.b

The permit requires that MS4s implement a public awareness survey at least twice a permit term.

(a) Develop and implement a public education strategy that establishes education tasks based on water quality problems, target audiences, and anticipated task effectiveness. The strategy must include identification of who is responsible for implementing specific tasks and a schedule for task implementation. The strategy must demonstrate how specific high priority storm water quality issues in the community or local pollutants of concern are addressed.

(b) Implement surveys at least twice during the permit term to gauge the level of awareness in target audiences and effectiveness of education tasks.

Colorado – Part I.E.1.a.ii.

The permit specifies required education and outreach activities that permittees must select from.

Education and Outreach Activities Table: Each year, the permittee must implement at least four education and outreach activities (bulleted items) and at least two must be from the Active and Interactive Outreach column. The activities can be the same from year to year or be different each year.

TABLE 1
Education and Outreach Activities Table

Passive Outreach (pick any two bullets each year)	Active and Interactive Outreach (pick any two bullets each year)
• Bus shelter/bench advertisement • Billboard/dasher board advertisement • Vehicle/bus advertisement • Radio/television/movie theatre advertisement • Newspaper advertisement • Distribute educational materials by brochure • Distribute educational materials by fact sheet • Distribute educational material by utility bill insert • Publish article (hard copy or electronic) • Storm drain marking by permittee staff that maintains 25% of permittee maintained inlets. • Stormwater related signage • Web site	• Ongoing advertisement/promotion of a stormwater hotline number or other method to report an illicit discharge • Ongoing advertisement/promotion on how to get more information about the stormwater program • Ongoing social media program • Web site that is interactive or contains stormwater information that includes actions that can be taken to reduce stormwater pollution • Newsletter (hard copy or electronic) • Promotion of existing local stormwater/environmental events or program that help protect water quality • Distribute promotional items or giveaways • Participate in or sponsor a water festival which involves populations that exist within the permit boundary • Participate in or sponsor a waterway clean-up and trash removal event • Participate in or sponsor a service project • Participate in or sponsor a stormwater or environmental presentation • Participate in or sponsor a stormwater or environmental event • Participate in or sponsor a household hazardous waste event • Participate in or sponsor an Adopt-a-Street program • Participate in or sponsor an Adopt-a-Waterway program • Participate in or sponsor an Adopt-a-Storm Drain program • Provide ongoing access to motor vehicle fluids recycling program • Stormwater booth at a community event • Conduct a stormwater survey • Storm drain marking program performed by the public/community • Pet waste stations • Participate in, plan or present stormwater materials to schools • Stormwater demonstration projects that show control measures or other pollutant reduction methods

Massachusetts – Part 2.2.2.a

The permit specifies audiences and number of educational messages for public education.

a. The permittee shall continue to implement the public education program required by the MS4-2003 permit by distributing educational material to the MS4 community. The educational program shall define educational goals, express specific messages, define the targeted audience for each message, and identify responsible parties for program implementation. If appropriate for the target audience, materials may be developed in a language other than English. At a minimum, the program shall provide information concerning the impact of stormwater discharges on water bodies within the community, especially those waters that are impaired or identified as priority waters. The program shall identify steps and/or activities that the public can take to reduce the pollutants in stormwater runoff and their impacts to the environment.

b. The educational program shall include education and outreach efforts for the following four audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities, unless one of these audiences is not present in the MS4 community. In such a situation, the MS4 must

document in both the NOI and SWMP which audience is absent from the community and no educational messages are required to that audience.

c. The permittee shall distribute a minimum of two (2) educational messages over the permit term to each audience identified in part 2.3.2.b. The distribution of materials to each audience shall be spaced at least a year apart. Educational messages may be printed materials such as brochures or newsletters; electronic materials such as websites; mass media such as newspaper articles or public service announcement (radio or cable); targeted workshops on stormwater management, or displays in a public area such as town/city hall. The permittee may use existing materials if they are appropriate for the message the permittee chooses to deliver or the permittee may develop its own educational materials. The permittee may partner with other MS4s, community groups or watershed associations to implement the education program to meet this permit requirement.

Arkansas – Part 3.2.1.3

Permit sets minimum number of stormwater themes or messages to be targeted and requires the outreach program to reach at least 50 percent of the population over the permit term.

3.2.1.3. Performance Standards. The stormwater public education and outreach program shall include more than one mechanism and target at least five different stormwater themes or messages over the permit term. At a minimum, at least one theme or message shall be targeted to the land development community. For non-traditional MS4s, the land development community refers to landscaping and construction contractors working within its boundaries. The stormwater public education and outreach program shall reach at least 50 percent of the population over the permit term.

Utah – Part 4.2.1

Permit specifies the four audiences the public education program must address (Part 4.2.1).

The Permittee must implement a public education and outreach program to promote behavior change by the public to reduce water quality impacts associated with pollutants in storm water runoff and illicit discharges. Outreach and educational efforts shall include a multimedia approach and shall be targeted and presented to specific audiences for increased effectiveness. The educational program must include documented education and outreach efforts for the following four audiences: (1) residents, (2) institutions, industrial and commercial facilities, (3) developers and contractors (construction), and (4) MS4-owned or operated facilities.

Public Involvement

Vermont – Part IV.H.2

Permit includes a menu of options the Permittee must choose from for public involvement. (Part IV.H.2.a)

a) The permittee must implement a public involvement/participation program, which at a minimum, complies with State and local public notice requirements, and includes at least three of the following:
   (1) Form a citizen stormwater advisory panel.
   (2) Establish or support a water quality monitoring program involving citizen volunteers.
   (3) Institute an on-going public workshop series on stormwater awareness.
   (4) Institute a continuing storm drain stenciling project.
   (5) Sponsor periodic community stream corridor clean-up days.
   (6) Establish and support a citizen "stormwater watch" group.
   (7) Create or support an "adopt-a-stream" program.
   (8) Undertake a program similar in content and scope to the above with the permission of the Secretary.
   (9) As an alternative to implementing three activities from the above list the permittee may participate the regional stormwater public involvement and participation program described in the May 1, 2011 memorandum of understanding between the designated small MS4s and the Chittenden County Regional Planning Commission, or subsequent amendments as approved by the Secretary, or in a regional public involvement and participation strategy if approved by the Secretary.

Minnesota – Part 3.D.2

Permit requires at least one annual public meeting or other opportunity for public input.

New permittees shall develop and implement, and existing permittees shall revise their current program, as necessary, and continue to implement, a Public Participation/Involvement program to solicit public input on the SWPPP. The permittee shall:

(1) Provide a minimum of one (1) opportunity annually for the public to provide input on the adequacy of the SWPPP. Public meetings can be conducted to satisfy this requirement provided appropriate local public notice requirements are followed and opportunity to review and comment on the SWPPP is provided.

Western Washington – S5.C.2

Permit requires SWMP and annual reports to be posted online by deadline or submitted to the state for posting on their webpage.

b. Each Permittee shall post on their website their SWMP Plan and the annual report required under S9.A no later than May 31 each year. All other submittals shall be available to the public upon request. To comply with the posting requirement, a Permittee that does not maintain a website may submit the updated SWMP in electronic format to Ecology for posting on Ecology's website.

Western Washington – Part 7 of the NOI form (Appendix 5 of permit)

Permit's notice of intent form requires the permittee to list dates when the two required public notices about the NOI were published in the newspaper.

Part 7 – Public Notice

A public notice must be published at least once each week for two consecutive weeks in a single newspaper of general circulation in the county or city in which the district or entity is located. See the NOI instructions for the public notice language requirements. Permit coverage will not be granted sooner than 31 days after the date of the second public notice.

Arkansas – Part 3.2.2.3

Permit specifies the minimum number of public involvement activities.

3.2.2.3. Performance Standards. The stormwater public involvement/participation program shall include at least five public involvement activities over the permit term.

Ohio – Part III.B.2.c.

Permit specifies the minimum number of public involvement activities.

c. Performance Standards. Your storm water public education and outreach program shall include more than one mechanism and target at least five different storm water themes or messages over the permit term. At a minimum, at least one theme or message shall be targeted to the development community. Your storm water public education and outreach program shall reach at least 50 percent of your population over the permit term.

Maine – Part IV.H.2.a.ii

Requires the permittee to annually conduct a public event that includes a pollution prevention/water quality theme.

ii. Public Event. The permittee or regional stormwater group of which the permittee is a member shall annually host/conduct or participate a public event (for example, storm drain stenciling, stream clean-up, household hazardous waste collection day, volunteer monitoring, neighborhood educational events, conservation commission outreach program, Urban Impaired Stream outreach program, or adopt a storm drain or local stream program). The event must include a pollution prevention and/or water quality theme.

Virginia – Section II.B.2.b

Permit requires a minimum of four local activities annually.

b. Public participation. The operator shall participate, through promotion, sponsorship, or other involvement, in a minimum of four local activities annually (e.g., stream cleanups; hazardous waste cleanup days; and meetings with watershed associations, environmental advisory committees, and other environmental organizations that operate within proximity to the operator's small MS4). The activities shall be aimed at increasing public participation to reduce stormwater pollutant loads; improve water quality; and support local restoration and clean-up projects, programs, groups, meetings, or other opportunities for public involvement.

Illicit Discharge Detection and Elimination

Western Washington – S5.C.3.b

Permit specifies conditions under which conditionally allowable discharges can be authorized.

ii. Conditionally Allowable Discharges: The regulatory mechanism may allow the following categories of non-stormwater discharges only if the stated conditions are met:

- Discharges from potable water sources, including but not limited to water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted, if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4.
- Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities (see section S5.C.1) and water conservation efforts.
- Dechlorinated swimming pool, spa and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenized if necessary, volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.
- Street and sidewalk wash water, water used to control dust, and routine external building washdown that does not use detergents. The Permittee shall reduce these discharges through, at a minimum, public education activities (see section S5.C.1) and/or water conservation efforts. To avoid washing pollutants into the MS4, Permittees shall minimize the amount of street wash and dust control water used.
- Other non-stormwater discharges. The discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee, which addresses control of such discharges.

Western Washington – S5.C.3.c

Permit requires specific phased schedule for outfall field screening.

c …

All Permittees, except for the City of Aberdeen, shall complete field screening for at least 40% of the MS4 no later than December 31, 2017, and on average 12% each year thereafter. The City of Aberdeen shall complete field screening for at least 40% of the system no later than June 30, 2018 and on average 12% each year thereafter.

Western Washington – S5.C.3.d

Permit specifies required investigation protocol and timeframes.

iv. Compliance with the provisions in (i), (ii), and (iii), above, shall be achieved by meeting the following timelines:

- Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment, consistent with General Condition G3.
- Investigate (or refer to the appropriate agency with the authority to act) within 7 days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge.
- Initiate an investigation within 21 days of any report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.

West Virginia – II.C.7.c.

Permit specifies that new MS4s must conduct a least one field assessment for illicit discharges per year.

20) Field assessment activities are to include:
    (a) Inspection of priority outfalls,
    (b) Dry weather screening,
    (c) New permittees shall prioritize receiving waters for visual inspection no later than three years from the effective date of this permit, including a field assessment of at least two water bodies.
    (d) At a minimum, new permittees shall ensure one field assessment shall be made each year thereafter.
    (e) Screening for illicit connections shall be conducted consistent with the manual titled "Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004", or another methodology of comparable effectiveness.

New Jersey – Part IV.F.5

The permit requires the permittees to develop eight separate ordinances to control the improper disposal of waste.

e. Yard Waste Ordinance / Collection Program
    i. Minimum Standard -Tier A Municipalities shall have adopted and shall enforce an ordinance that prohibits placing non-containerized yard wastes in the cartway of the street or shall have developed and implemented a yard waste collection and disposal program. A yard waste collection program shall include the adoption and enforcement of an ordinance prohibiting the placing of yard waste closer than 10 feet from any storm sewer inlet along the street, unless they are bagged or otherwise containerized. The frequency of pickups shall be determined at the discretion of the Tier A Municipality but must be part of a set yard waste collection schedule which is noticed to all municipal residents and businesses. Any area, which the municipality determines to have no yard waste, will be exempt from the collections.
    ii. Measurable Goal -Tier A Municipalities shall certify annually that they have met the Yard Waste minimum standard. Tier A Municipalities that have chosen to implement the yard waste collection program must include the collection schedule dates in the annual report.

iii. Implementation - On March 1, 2009 and thereafter, Tier A Municipalities shall implement the Yard Waste Ordinance / Collection Program minimum standard.

New Mexico (Middle Rio Grande) – Part I.D.5.(e)(iii)

Permit requires screening of storm sewer system at set frequencies.

(iii) The permittee must screen the entire jurisdiction at least once every five (5) years and high priority areas at least once every year. High priority areas include any area where there is ongoing evidence of illicit discharges or dumping, or where there are citizen complaints on more than five (5) separate events within twelve (12) months. The permittee must:

(a) Include in its SWMP document a description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected.

(b) Comply with the dry weather screening program established in Table 6 and the monitoring requirements specified in Part III.A.2.

(c) If applicable, implement the priority ranking system develop in previous permit term.

California – Part E.9.c

Permit includes requirements to conduct dry weather screening of any flowing outfalls and compare to Action Level Concentrations.

E.9.c. Field Sampling to Detect Illicit Discharges

(i) Task Description – Within the second year of the effective date of the permit (e.g. while conducting the outfall inventory under Section E.9.a.), the Permittee shall sample any outfalls that are flowing or ponding more than 72 hours after the last rain event. The Permittee shall also conduct dry weather sampling (more than 72 hours since the last rain event) of outfalls annually identified as priority areas.

…

(b) Verify that indicator parameters, as specified in Table 2 Action Level Concentrations for Indicator Parameters are not exceeded. Alternatively, the Permittee may tailor Table 2 to align with parameters based on local knowledge of pollutants of concern. Modifications and associated justifications shall be identified within SMARTS prior to conducting field sampling as specified in Section E.9.c.(i).

Table 2. Action Level Concentrations for Indicator Parameters Indicator Parameter

	Action Level Concentration
Ammonia	>= 50 mg/L
Color	>= 500 units
Conductivity	>= 2,000 µS/cm
Hardness	<= 10 mg/L as CaCO3 or >= 2,000 mg/L as CaCO3
pH	<= 5 or >=9
Potassium	>= 20 mg/L
Turbidity	>= 1,000 NTU

California – Part E.9.d

Permit includes requirements to investigate illicit discharges within a certain timeframe

(ii) Implementation Level - At a minimum, the Permittee shall conduct an investigation(s) to identify and locate the source of any suspected illicit discharge within 72 hours of becoming aware of the suspected illicit discharge. For investigations that require more than 72 hours, the Permittee shall identify the actions being taken to identify and locate the source of the suspected illicit discharge.

(a) Non-storm water discharges suspected of being sanitary sewage and/or significantly contaminated shall be investigated within 24 hours

Arkansas – Part 3.2.3.9

Permit requires all outfalls to be screened for dry-weather discharges over the permit term.

3.2.3.9 Performance Standards. The stormwater illicit discharge detection and elimination program shall include dry-weather screening of all stormwater outfalls located in the MS4's urbanized area at the time of this permit coverage over the permit term. Only those outfalls draining undeveloped watersheds do not need to be screened for illicit discharges. The storm sewer system map shall be updated annually as needed for changes occurring in the urbanized area boundaries at the time of permit coverage.

Georgia – Part 4.2.3.5 (Table 4.2.3(a))

Permit requires all outfalls to be inspected for dry weather discharges over the permit term.

3.a. Conduct dry weather screening (DWS) inspections on 100% of the total outfalls within the 5-year permit term in accordance with procedures contained in the SWMP.

Virginia – Section II.B.3.c.1.b

Permit requires at least 50 outfalls to be screened annually.

(b) The minimum number of field screening activities the operator shall complete annually to be determined as follows: (i) if the total number of outfalls in the small MS4 is less than 50, all outfalls shall be screened annually or

(ii) if the small MS4 has 50 or more total outfalls, a minimum of 50 outfalls shall be screened annually.

Massachusetts – Part 2.3.4.7.b

Permit requires outfalls to be screened within 3 years for dry weather flows, lists information that must be collected, and specifies parameters that must be analyzed in the sample.

b. Dry Weather Outfall and Interconnection Screening and Sampling

All outfalls/interconnections (excluding Problem and excluded Outfalls) shall be inspected for the presence of dry weather flow within three (3) years of the permit effective date. The permittee shall screen all High and Low Priority Outfalls in accordance with their initial ranking developed at part 2.3.4.7.a.

…

iii. Screening requirements: For each outfall/interconnection:

1. The permittee shall record all of the following information and include it in the outfall/interconnection inventory and priority ranking:
   - unique identifier,
   - receiving water,
   - date of most recent inspection,
   - dimensions,
   - shape,
   - material (concrete, PVC),
   - spatial location (latitude and longitude with a minimum accuracy of +/-30 feet,
   - physical condition,
   - indicators of potential non-stormwater discharges (including presence or evidence of suspect flow and sensory observations such as odor, color, turbidity, floatables, or oil sheen).

…

4. Where dry weather flow is found at an outfall/interconnection, at least one (1) sample shall be collected, and:

   a) Samples shall be analyzed at a minimum for:
      - ammonia,
      - chlorine,
      - conductivity,
      - salinity,
      - E. coli (freshwater receiving water) or enterococcus (saline or brackish receiving water),
      - surfactants (such as MBAS),
      - temperature, and
      - pollutants of concern

   b) All analyses with the exception of indicator bacteria and pollutants of concern can be performed with field test kits or field instrumentation and are not subject to 40 CFR part 136 requirements. Sampling for bacteria and pollutants of concern shall be conducted using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Sampling for ammonia and surfactants must use sufficiently sensitive methods to detect those parameters at or below the threshold indicator concentrations of 0.5 mg/L for ammonia and 0.25 mg/L for surfactants. Sampling for residual chlorine must use a method with a detection limit of 0.02 mg/L or 20 ug/L.

Construction Site Runoff

Tennessee – Part 4.2.4

Permit requires erosion and sediment controls that are consistent with state handbook; permittees must develop construction site inventory by a specified deadline that contains specific information about projects; permittee inspectors and plan reviewers must be state certified.

The program must include the development, implementation and documentation of, at a minimum:

….

b. Requirements for construction site operators to implement appropriate erosion prevention and sediment control best management practices: The permittee's EPSC requirements shall be consistent with those described in the TDEC EPSC Handbook.

…

d. An inventory of actively permitted public and private construction sites that result in a total land disturbance as defined in section 4.2.4. For existing permittees, the inventory must be updated as new projects are permitted and projects are completed. For new permittees, the inventory must be completed with 24 months of coverage and then updated as new projects are permitted and projects are completed. The inventory must contain relevant contact information for each project (e.g., tracking number, name, address, phone, etc.), the size of the project and area of disturbance, whether the project has submitted for permit coverage under the Tennessee Construction General Permit (TNR100000) and the date the permittee approved the construction site plan. The permittee must make this inventory available to TDEC upon request.

….

i. Requirements for permittee inspectors who conduct inspections of construction sites must maintain certification under the Tennessee Fundamentals of Erosion Prevention and Sediment Control, Level 1 (or equivalent). Construction site plan reviewers must receive a certificate of completion from the Tennessee Erosion Prevention and Sediment Control Design Course, Level 2 or equivalent. It is recommended that permittee construction staff receiving training under both courses.

….

j. Procedures to establish priority construction activities to include at a minimum
   - Pre-construction meetings with construction-site operators for priority construction activities;
   - Inspections by the permittee of priority construction sites at least once per month; and
   - Documentation of procedures, including related meetings and inspections.

Western Washington – S5.C.4.a.

Permit specifies minimum standards for a construction ordinance.

The ordinance or other enforceable mechanism shall include, at a minimum:

i. The Minimum Requirements, thresholds, and definitions in Appendix 1 or a program approved by Ecology under the 2013 NPDES Phase I Municipal Stormwater Permit, for

new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 shall be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of Ecology-approved basin plans or other similar water quality and quantity planning efforts. Such local requirements and thresholds shall provide equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.

Appendix 1 includes 32 pages of detailed requirements on "Minimum Technical Requirements for New Development and Redevelopment." Section 4.2 (Minimum Requirement #2: Construction Stormwater Pollution Prevention Plan (SWPPP)) includes specific standards for construction sites. The following is one example of the detailed standards for sediment controls:

4. Install Sediment Controls:
    a. Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants.
    b. Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
    c. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
    d. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard in 3.a, above.
    e. Locate BMPs intended to trap sediment on-site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.
    f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

Western Washington – S5.C.4.b.

Permit describes when inspections are to take place and specifies that compliance will be determined by achieving at least 80% of scheduled inspections.

ii. Inspect, prior to clearing and construction, all permitted development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 Determining Construction Site Sediment Damage Potential. As an alternative to evaluating each site according to Appendix 7, Permittees may choose to inspect all construction sites that meet the minimum thresholds adopted pursuant to S5.C.4.a.i, above.

iii. Inspect all permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection.

iv. Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. Verify that a maintenance plan is completed and responsibility for maintenance is assigned for stormwater treatment and flow control BMPs/facilities. Enforce as necessary based on the inspection.

v. Compliance with the inspection requirements in (ii), (iii) and (iv) above, shall be determined by the presence and records of an established inspection program designed to inspect all sites. Compliance during this permit term shall be determined by achieving at least 80% of scheduled inspections.

West Virginia – II.C.7.d.

Permit prescribes the components of the required construction ordinance.

5) The regulatory mechanism shall authorize the permittee to:

(a) Implement erosion and sediment control BMPs that are consistent with West Virginia's Erosion and Sediment Control BMP Manual or other manuals listed in Appendix D,

(b) Require construction site operators to install and maintain adequate erosion and sediment control BMPs to provide protection to receiving waters,

(c) Require construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site,

(d) Demonstrate that registration under the WVINPDES construction stormwater general permit has been obtained for those sites one acre and greater.

(i) Provided the Department has approved the permittee as a Qualifying Local Program, WVINPDES construction stormwater permit will be issued by the permittee and not by the Department.

(e) Incorporate consideration of potential water quality impacts and review of individual pre-construction site plans to ensure consistency with local and State sediment and erosion control requirements.

(f) Establish authority for receipt and consideration of comments and information submitted by the public.

(g) Establish authority for site inspections and enforcement of control measures including steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.

Maine – Part IV.H.4.b.vii

Permit specifies minimum number of construction site inspections.

vii. Site inspections procedures to ensure projects are in compliance with the erosion and sedimentation control plan, MCGP and Chapter 500, Stormwater Management. In watersheds of Urban Impaired Streams and the permittee's highest priority watershed or

sub-watershed, inspect and properly document the construction activity at least three times with one inspection just prior to or within 24 hours of a rain event greater than .2 inches, and one inspection at project completion to ensure that all post construction BMPs were properly installed, and that final stabilization of the site has been properly completed. For other watersheds, inspect the construction activity at least twice, with one inspection at project completion to ensure that all post construction BMPs were properly installed, and that final stabilization of the site has been properly completed.

New York – Part VII.A.4.a.

Permit specifies exactly what constitutes an equivalent program/legal authority

At a minimum, all covered entities must:

Develop (for newly authorized MS4s), implement, and enforce a program that:

…

iii. includes a law, ordinance or other regulatory mechanism to require a SWPPP for each applicable land disturbing activity that includes erosion and sediment controls that meet the States most current technical standards:
   - this mechanism must be equivalent to one of the versions of the NYSDEC Sample Local Laws for Stormwater Management and Erosion and Sediment Controls; and
   - equivalence must be documented
   - by adoption of one of the sample local laws without changes;
   - by using the NYSDEC Gap Analysis Workbook; or
   - by adoption of a modified version of the sample law, or an alternative law, and, in either scenario, certification by the attorney representing the small MS4 that the adopted law is equivalent to one of the sample local laws.

iv. contains requirements for construction site operators to implement erosion and sediment control management practices;

v. allows for sanctions to ensure compliance to the extent allowable by State law;

vi. contains requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, pursuant to the requirement of construction permit;

vii. describes procedures for SWPPP review with consideration of potential water quality impacts and review of individual SWPPPs to ensure consistency with State and local sediment and erosion control requirements;
   - ensure that the individuals performing the reviews are adequately trained and understand the State and local sediment and erosion control requirements;
   - all SWPPPs must be reviewed for sites where the disturbance is one acre or greater; and
   - after review of SWPPPs, the covered entity must utilize the MS4 SWPPP Acceptance Forms created by the Department and required by the SPDES General Permit for Stormwater Discharges from Construction Activity when notifying construction site owner / operators that their plans have been accepted by the covered entity;

New Mexico (Middle Rio Grande) – Part I.D.5(a)(iii)

Permit requires all sites to be inspected at least once annually.

iii) Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres within the MS4 jurisdiction. Site inspections are to be followed by any necessary compliance or enforcement action. Follow-up inspections are to be conducted to ensure corrective maintenance has occurred; and, all projects must be inspected at completion for confirmation of final stabilization.

Wisconsin – Part 2.4.1

Permit requires that construction projects must meet state standards.

2.4.1.2 Requirements for design and implementation of erosion and sediment control practices consistent with the criteria of those approved by the Department.

Note: Department approved erosion and sediment control practices may be found on the Department's Internet site at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

2.4.1.3 Construction site performance standards equivalent to those in ss. NR 151.11(6m) and 151.23(4m), Wis. Adm. Code.

2.4.1.4 Erosion and sediment control plan requirements for landowners of construction sites equivalent to those contained in s. NR 216.46, Wis. Adm. Code.

California – Part E.7.b.2(a)

Permit requires training/certification for all construction staff.

(a) Permittee Staff Training

(i) Task Description – Within the second year of the effective date of the permit, the Permittee shall ensure that all staff implementing the construction site storm water runoff control program are adequately trained.

(ii) Implementation Level – The Permittee may conduct in-house training or contract with consultants. Training shall be provided to the following staff positions of the MS4:

(a) Plan Reviewers and Permitting Staff - The Permittee shall ensure plan reviewers and permitting staff are qualified individuals, knowledgeable in the technical review of local erosion and sediment control plans, (including proper control measure selection, installation, implementation, and maintenance, as well as administrative requirements such as inspection reporting/tracking and the use of the Permittee's enforcement responses), and are certified pursuant to a State Water Board sponsored program as a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD), or a designated person on staff possesses the QSD credential.

(b) Erosion Sediment Control/Storm Water Inspectors - The Permittee shall ensure inspectors are qualified individuals, knowledgeable in inspection procedures, and are certified pursuant to a State Water Board sponsored program as either (1) a Qualified SWPPP Developer (QSD); (2) a Qualified SWPPP Practitioner (QSP); or (3) a designated person on staff possesses each credential (QSD to supervise plan review, QSP to supervise inspection operations).

California – Part E.10.c.(ii)

Permit requires at least three inspections at priority construction sites.

(ii) Implementation Level – The inspection procedures shall be implemented to verify compliance with the Permittee's construction site storm water control ordinance. At a minimum, inspections must be conducted at priority construction sites (defined below) prior to land disturbance (during the rainy season), during active construction and following active construction. Construction site inspections shall include assessment of compliance with the Permittee's construction site storm water runoff control ordinance, and other applicable ordinances. A Permittee may propose, for Regional Water Board Executive Officer approval, an alternative approach for construction site oversight, provided the Permittee demonstrates the approach will be equally effective at reducing the discharge of pollutants from construction sites to the maximum extent practicable.

Prior to allowing an operator to commence land disturbance during the rainy season, the Permittee must perform an inspection, to ensure all necessary sediment controls are in place. During active construction, the Permittee shall conduct inspections, based on prioritization of construction sites. Active construction inspections shall include at a minimum: inspection of maintenance of BMPs, effectiveness of BMPs installed and verification that pollutants of concern are not discharged into receiving water bodies.

Prioritization criteria shall be based on project threat to water quality. Project threat to water quality includes soil erosion potential, site slope, projects size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, non-storm water discharges, projects more than one acre that are not subject to the CGP (sites that have obtained an Erosivity Waiver) and past record of non-compliance by the operator of the construction site. Inspection frequencies shall be conducted based on the prioritization criteria described above.

At the conclusion of the project, the Permittee must inspect to ensure that all disturbed areas have been stabilized and that all temporary erosion and sediment control measures that are no longer needed have been removed as required by the local construction site storm water control ordinance.

Colorado – Part I.E.3.a.vi.E.

Permit specifies frequency of both routine inspections and compliance inspections.

(C) Routine Inspection: A routine inspection must be conducted at least once before final stabilization. Routine inspections do not apply to sites eligible for other inspection frequencies in accordance with this section (Part I.E.3.a.vi).

1) Frequency: Conduct at least every 45 days.

…

(E) Compliance Inspection: A compliance inspection must occur after the permittee documents an illicit discharge or identifies that there is a failure to implement a control measure or an inadequate control measure, unless corrections were made and observed by the inspector during the initial inspection.

(a) Frequency: Conduct within at least 14 days from the time the permittee documents an illicit discharge or identifies that there is a failure to implement a control measure or

an inadequate control measure, unless corrections were made and observed by the inspector during the initial inspection.

Arkansas – Part 3.2.4.3

Permit requires pre-construction plan reviews monthly inspections of all construction sites.

3.2.4.3. Performance Standards. The construction site stormwater control program shall include pre-construction site plan reviews (reviews of construction site Stormwater Pollution Prevention Plans) of 100 percent of projects from construction activities that result in a land disturbance of greater than or equal to one acre. These applicable sites shall be inspected at least on a monthly basis to ensure compliance.

South Carolina – Part 4.2.4.6.b

Permit specifies construction inspection frequency.

b. Permittees must implement procedures for inspecting construction projects in accordance with the frequency specified in table 4.2.4.6.b.

Table 4.2.4.6.b Inspection Frequency

Site	Inspection Frequency
a. All sites *5 acres* or larger in size	All new approvals must be inspected initially within the first two weeks of commencement of land disturbing activity. All active sites shall be inspected at least monthly during construction All inactive sites shall be inspected at least bi-monthly
b. All sites one (1) acre or larger that discharge to a tributary listed by the state/tribe as an impaired water for sediment turbidity, or BIO under the CWA section 303(d)	
c. All sites determined to be a significant threat to water quality*	
d. All other construction sites with one (1) acre or more of soil disturbance not meeting the criteria specified in a, b, or c above	Inspection must occur at least monthly
e. Final inspection	Inspect all permitting projects to ensure that all graded areas have reached final stabilization and that all temporary control measures are removed and permanent stormwater management BMP are permitted as required

* In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; compliance by the operators of the construction site; proximity to sensitive waterbodies; and, other factors relevant to particular SMS4.

Post-Construction Runoff

Tennessee – Part 4.2.5

Permit includes specific post-construction retention standard, and volume credits when a certain type of development is built. Also allows off-site mitigation for projects that cannot manage stormwater on-site (must be 50% greater control than otherwise achieved on-site).

4.2.5.2 Permanent Stormwater Standards

The permanent stormwater management program must require New Development Projects to be designed to remove pollutants to the MEP.

SCMs that rely on infiltration, evapotranspiration, or capture/reuse of the water quality treatment volume (WQTV), as defined in sub-section 4.2.5.2.2, are practices that approach 100% pollutant removal and constitute MEP where site-specific conditions allow.

If site-specific limitations as described in sub-section 4.2.5.2.1 do not allow infiltration, evapotranspiration, or capture/reuse of the entire WQTV, then a combination of SCMs must be selected to maximize pollutant removal consistent with site-specific limitations and, at a minimum, be designed to achieve an overall treatment efficiency of 80% TSS removal.

Compliance with permanent stormwater standards for New Development Projects is determined by meeting design criteria and other permit requirements in this part, 4.2.5. For design purposes, total suspended solids may be used as the indicator for the removal of pollutants (such as sediment, nutrients, and pathogens). SCMs must be designed to provide full treatment capacity within 72 hours following the end of the preceding rain event for the life of the New Development Project.

The Division considers compliance with the permanent stormwater design performance standards detailed in the previous Phase II General NPDES permit issued August 31, 2010 to satisfy the permanent stormwater standards in this permit.

The permittee may also develop a mitigation program and/or system of payment into a public stormwater fund as described in sub-section 4.2.5.2.3.

4.2.5.2.1 Site-Specific Limitations

Site-specific limitations to infiltration, evapotranspiration, or capture/reuse of the entire WQTV may include:

a. Insufficient infiltration capacity of soils;

b. A potential for introducing excessive pollutants into groundwater;

c. Pre-existing soil contamination in areas subject to contact with infiltrated runoff;

d. Presence of sinkholes or other karst features on the site or in close proximity;

e. An extensive presence of shallow ground water table, shallow bedrock, or other restrictive layers;

f. Presence of contractive or expansive soils in close proximity to structures; and

g. Other conditions as identified by the permittee, submitted to the local EFO for review and authorization by the division in writing, and documented in the SWMP.

4.2.5.2.2 Water Quality Treatment Volume (WQTV)

The WQTV is defined as the runoff generated from impervious surfaces during the first inch of a rainfall event. A representative storm event or a volumetric runoff coefficient (Rv) can be used to review plans for the WQTV. Permittees may use other equivalent methods to evaluate treatment of the WQTV, with prior approval by the division.

The permanent Stormwater Management Program may allow for a reduction of the WQTV for a New Development Project up to 20% for any one of the following conditions, and up to a total maximum of 50% for a combination of the following conditions:

a. Redevelopment projects (including, but not limited to, brownfield redevelopment);

b. Vertical density (floor to area ratio of at least 2, or at least 18 units per acre); and

c. Incentives as identified by the permittee, submitted to the local EFO and approved by the division in writing, and documented in the SWMP.

4.2.5.2.3 Off-site Stormwater Mitigation or Payment into Public Stormwater Fund

A permittee may choose to develop an offsite mitigation program or payment in lieu into a public stormwater fund to offset the portion of the WQTV that cannot be treated on site to the MEP. The program must ensure that off-site stormwater mitigation will be accomplished within the same USGS 12-digit hydrologic unit code (HUC) watershed as the New Development Project, if practicable, and will treat a minimum of 1.5 times the portion of the WQTV not treated on site. The permittee may identify priority areas within the watershed in which stormwater mitigation projects are to be completed. The program must have a mitigation project approval procedure, and all projects must meet all requirements in this permit. Procedures and requirements in the offsite mitigation and payment in lieu programs should be documented in the SWMP and available for review.

If the permittee allows payment into a public stormwater fund, the permittee assumes responsibility to provide the required mitigation projects. The public stormwater fund should be used to fund public mitigation projects. The payment amount into a public stormwater fund must be sufficient to design, install, and maintain the stormwater mitigation measures.

4.2.5.2.4 Water Quality Riparian Buffers

Permittees shall develop and implement a set of requirements to establish, protect and maintain permanent water quality riparian buffers to provide additional water quality treatment in riparian areas of New Development Projects that contain streams.

Riparian buffers must meet the following minimum standards:

1. Stormwater discharges should enter the water quality riparian buffer as sheet flow, not as concentrated flow, where site conditions allow.

2. Water quality riparian buffers must have the following minimum widths, based upon drainage area of the receiving stream adjacent to the project, unless site specific conditions necessitate alternative widths, as described later in this subpart:

Drainage area of stream (square miles)	Minimum total buffer width (ft.)	Minimum inner zone (ft.)
<1	30	30
1 – 2	45	30
>2	60	40

…

4.2.5.3 Codes and Ordinances Review and Update

Within one year of obtaining initial permit coverage, newly permitted programs shall review local codes and ordinances using the EPA Water Quality Scorecard. A completed copy of the Scorecard shall be submitted with the subsequent annual report. Permittees who have completed the Scorecard in the past are not required to repeat this review.

Newly permitted programs shall update codes and ordinances or other legal instruments as necessary to comply with the permit within 24 months of coverage under this permit. Current permittees shall continue to implement the existing permanent Stormwater Management Program and update legal instruments according to the compliance schedule in sub-section 4.1.1.

Western Washington – S5.C.4.c.

Permit requires that the permittee adopt existing Western Washington maintenance standards or develop their own for post-construction facilities.

ii. Each Permittee shall establish maintenance standards that are as protective or more protective of facility function than those specified in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington. For facilities which do not have maintenance standards, the Permittee shall develop a maintenance standard.

Western Washington – S5.C.4.c.

Permit specifies frequency of inspections for stormwater treatment and flow facilities and establishes a compliance level of 80% of scheduled inspections.

iii. Annual inspections of all stormwater treatment and flow control BMPs/facilities that discharge to the MS4 and were permitted by the Permittee according to S5.C.4.b, including those permitted in accordance with requirements adopted pursuant to the 2007-2012 Ecology municipal stormwater permits, unless there are maintenance records to justify a different frequency. Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 Certification and Signature.

iv. Inspections of all permanent stormwater treatment and flow control BMPs/facilities and catch basins in new residential developments every six months until 90% of the lots are constructed (or when construction is stopped and the site is fully stabilized) to identify maintenance needs and enforce compliance with maintenance standards as needed.

v. Compliance with the inspection requirements in (iii) and (iv) above shall be determined by the presence and records of an established inspection program designed to inspect all sites. Compliance during this permit term shall be determined by achieving at least 80% of scheduled inspections.

West Virginia – II.C.7.e.

Permit includes required site and neighborhood design elements for all regulated projects.

11) To manage the impact of stormwater on receiving waters, the program shall include site and neighborhood design elements implemented in tandem with watershed protection elements.
    (a) The permittee must implement and enforce via ordinance and/or other enforceable mechanisms the following requirements that keep and manage onsite the first 1 inch of rainfall from an average 24-hour storm preceded by 48 hours of no measurable precipitation or that provide equal benefits for quality water.
    (b) The first 1" of rainfall must be 100% managed with no discharge to surface waters except when the permittee allows an alternative approach as described below:
        (i) Stormwater is treated before release to surface waters via extended or engineered infiltration. Extended filtration practices that are designed to capture and manage up to one inch of rainfall may discharge through an underdrain system.
        (ii) The permittee develops and implements a program to collect payment in lieu of on-site retention, provided in-lieu funds are used for stormwater projects only.
        (iii) The permittee develops and implements an off-site mitigation program.
        (iv) The permittee develops and obtains approval of an alternative method of managing the first 1" of rainfall. The method must be equally protective of water quality as the methods spelled out in the permit.
    (c) Run-off volume reduction can be achieved by:
        (i) Canopy interception,
        (ii) Soil amendments,
        (iii) Evaporation,
        (iv) Evapotranspiration,
        (v) Rainfall harvesting such as rain tanks and cisterns,
        (vi) Grass channels and swales,
        (vii) Reforestation,
        (viii) Green roofs,
        (ix) Rooftop disconnections, such as gutter drains,
        (x) Permeable pavers/pavement,
        (xi) Porous concrete,
        (xii) Engineered infiltration including extended infiltration via bioretention cells with eventual release,
        (xiii) Release to groundwater may require an Underground Injection Control Permit and permittees are required to list projects using this practice in the annual report, or

(xiv) Any combination of these methods.

(d) In instances where alternatives to complete on-site retention of the first inch of rainfall are allowed, technical justification as to the infeasibility of on-site retention is required, must be documented and approved by WVDEP.

West Virginia – II.C.7.e.

Permit includes incentive standards that can be applied to certain types of projects that reduce impervious surface or create less accessory impervious area.

13) When considered at the watershed scale, certain types of development can either reduce existing impervious surfaces, or at least create less' accessory' impervious surfaces.

(a) Incentive standards may be applied to these types of projects.

(b) A reduction of 0.2 inches from the one inch runoff reduction standard may be applied to any of the following types of development:

(i) Redevelopment,

(ii) Brownfield redevelopment

(iii) High density (>7 units per acre)

(iv) Vertical Density, (Floor to Area Ratio (FAR) of2 or > 18 units per acre)

(v) Mixed use and Transit Oriented Development (within Y, mile of transit)

(c) Reductions are additive up to a maximum reduction of .75 inches for a project that meets four or more criteria.

(d) The permittee may choose to be more restrictive and allow a reduction of less than 0.75 inches if they choose.

(e) In no case will the reduction be greater than 0.75 inches.

Maine – IV.H.5.a.

The permit requires compliance oversight inspections of post-construction BMPs and specifies the percentage of sites which must be inspected annually.

iii. Each permittee shall annually inspect a percentage of post construction BMPs located in the direct watershed of a lake most at risk from new development or in watersheds of an urban impaired stream. If the owner or operator of a post construction BMP hires a qualified third party inspector, the permittee will have no inspection requirements. If the owner or operator of a post construction BMP does a "self" inspection, the permittee is required to conduct the following inspection schedule.

1-10 post construction sites: inspect at least one site, or 40% (whichever is greater)

11-30 post construction sites: inspect at least four sites, or 30% (whichever is greater)

31-60 post construction sites: inspect at least nine sites, or 25% (whichever is greater)

61-100 post construction sites: inspect at least fifteen sites, or 20% (whichever is greater)

101-160 post construction sites: inspect at least twenty sites, or 17% (whichever is greater)

Over 160 post construction sites: inspect at least twenty seven sites, or 11% (whichever is greater)

NOTE: For the purposes of this Minimum Control Measure, a post construction site may be a large commercial development i.e. big box store, or a subdivision, or any activity that disturbed one of more acres. Construction sites may have multiple post construction BMPs.

EPA NOTE: According to the state permitting authority, all of the state's lakes are considered to be either "a lake most at risk from new development or in watersheds of an urban impaired stream."

New York – Part VII.A.5.

Permit specifies that all permittees must enforce a program that provides equivalent protection to the post-construction standards contained in the state's Construction General Permit.

At a minimum, all covered entities must:

a. Develop (for newly authorized MS4s), implement, and enforce a program that:
   i. provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities, unless more stringent requirements are contained within this SPDES general permit;

[Refer to Part I.C.2 of the state's Construction General Permit, which includes specific sizing criteria for post-construction practices for new development sites.]

Minnesota – Part III.D.5.

Permit specifies post-construction performance standards, exceptions, and mitigation provisions allowed.

a. A Regulatory Mechanism(s) that incorporates:
   (1) A requirement that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity
   (2) Conditions for Post-Construction Stormwater Management:

   The permittee shall develop and implement a Post-Construction Stormwater Management program that requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the MEP:

   (a) For new development projects – no net increase from pre-project conditions (on an annual average basis) of:
      1) Stormwater discharge Volume, unless precluded by the stormwater management limitations in Part III.D.5.a(3)(a)
      2) Stormwater discharges of Total Suspended Solids (TSS)
      3) Stormwater discharges of Total Phosphorus (TP)
   (b) For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of:
      1) Stormwater discharge Volume, unless precluded by the stormwater management limitations in Part III.D.5.a(3)(a)
      2) Stormwater discharges of TSS

3) Stormwater discharges of TP

(3) Stormwater management limitations and exceptions

(a) Limitations

1) The permittee's Regulatory Mechanism(s) shall prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in Part III.D.5.a(2) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas:

a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the Agency

b) Where vehicle fueling and maintenance occur

c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock

d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater

2) The permittee's Regulatory Mechanism(s) shall restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management, without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:

a) With predominately Hydrologic Soil Group D (clay) soils

b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features

c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp.

d) Where soil infiltration rates are more than 8.3 inches per hour

New Mexico (Middle Rio Grande) – Part I.D.5.b(ii)

Permit includes specific post-construction runoff performance standards.

(b) An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law. The ordinance or policy must:

Incorporate a stormwater quality design standard that manages on-site the 90th percentile storm event discharge volume associated with new development sites and 80th percentile storm event discharge volume associated with redevelopment sites, through stormwater controls that infiltrate, evapotranspire the discharge volume, except in instances where full compliance cannot be achieved, as provided in Part I.D.5.b.(v). The stormwater from rooftop discharge may be harvested and used on-site for noncommercial use. Any controls utilizing impoundments that are also used for flood control that are located in areas where the New Mexico Office of the State Engineer requirements at NMAC 19.26.2.15 (see also Section 72-5-32 NMSA) apply must drain within 96 hours unless the state engineer has issued a waiver to the owner of the impoundment. Options to implement the site design standard include, but not limited to: management of the discharge volume achieved by

canopy interception, soil amendments, rainfall harvesting, rain tanks and cisterns, engineered infiltration, extended filtration, dry swales, bioretention, roof top disconnections, permeable pavement, porous concrete, permeable pavers, reforestation, grass channels, green roofs and other appropriate techniques, and any combination of these practices, including implementation of other stormwater controls used to reduce pollutants in stormwater (e.g., a water quality facility).

Estimation of the 90th or 80th percentile storm event discharge volume is included in EPA Technical Report entitled "Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, EPA Publication Number 832-R-14-007". Permittees can also estimate:

Option A: a site specific 90th or 80th percentile storm event discharge volume using methodology specified in the referenced EPA Technical Report.

Option B: a site specific pre-development hydrology and associated storm event discharge volume using methodology specified in the referenced EPA technical Report.

Wisconsin – Part 2.5.1

Permit requires that post-construction performance standards be equivalent to state standards.

2.5.1.3 For new development and infill, post-construction performance standards equivalent to those in ss. NR 151.122 through 151.126 and 151.242 through 151.246, Wis. Adm. Code. Post-construction performance standards for new development and infill may be more restrictive than those required in this section 2.5.1.3 if necessary to comply with federally approved TMDL requirements.

2.5.1.4 For redevelopment, post-construction performance standards equivalent to or more restrictive than those in ss. NR 151.122 through 151.126 and 151.242 through 151.246, Wis. Adm. Code.

2.5.1.5 Storm water plan requirements for landowners of construction sites equivalent to those contained in s. NR 216.47, Wis. Adm. Code.

From EPA 2016 MS4 Permitting Approaches – Part 2: Post Construction Standards:

Requires permittees to implement a program for new development and redevelopment that includes an ordinance or other regulatory mechanism that establishes post-construction performance standards equivalent to those contained in Wisconsin's administrative code NR 151.122 through 151.126, and 151.242 through 151.246. The infiltration performance standard in Wisconsin's code is based on the imperviousness of the site. For example, sites with low imperviousness or development with less than 40% connected imperviousness such as parks, cemeteries, and low-density residential development, must infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90% of the pre-development infiltration volume, based on an average annual rainfall. For sites with 40%–80% connected imperviousness, such as medium- and high-density residential, multi-family development, industrial and institutional development, and office parks, the post-development infiltration volume shall be at least 75% of the pre-development infiltration volume. For sites greater than 80% connected imperviousness, such as commercial strip malls, shopping centers, and commercial

downtowns, the post-development infiltration volume shall be at least 60% of the pre-development infiltration volume.

Wisconsin – Part 2.7

Permit includes a post-construction performance standard that requires the permittee to reduce TSS discharges by 20%.

2.7 Storm Water Quality Management

The permittee shall develop and implement a municipal storm water management program. This program shall achieve compliance with the developed urban area performance standards of s. NR 151.13(2)(b)1., Wis. Adm. Code, for those areas of the municipality that were not subject to the post-construction performance standards of ss. NR 151.12 or 151.24, or ss. NR 151.122 through 151.126 or ss. 151.242 through 151.246, Wis. Adm. Code. The program shall include:

2.7.1 To the maximum extent practicable, implementation of storm water management practices necessary to achieve a 20% reduction in the annual average mass of total suspended solids discharging from the MS4 to surface waters of the state as compared to implementing no storm water management controls in accordance with the compliance schedule in section 3 of this permit. The permittee may elect to meet the 20% total suspended solids standard on a watershed or regional basis by working with other permittee(s) to provide regional treatment that collectively meets the standard.

Note: The 20% total suspended solids reduction requirement applies to runoff from areas of urban land use and are not applicable to agricultural or rural land uses and associated roads. Additional MS4 modeling guidance for modeling the total suspended solids control is given on the Department's Internet site at: http://dnr.wi.gov/topic/stormwater/standards/ms4_modeling.html

California – Part E.12.e(ii)(c)

Permit includes a numeric sizing criteria for retention and treatment practices.

(c) Numeric Sizing Criteria for Storm Water Retention and Treatment

The Permittees shall require facilities designed to evapotranspire, infiltrate, harvest/use, and biotreat storm water to meet at least one of the following hydraulic sizing design criteria:

1) Volumetric Criteria:

a) The maximized capture storm water volume for the tributary area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998) pages 175-178 (that is, approximately the 85th percentile 24-hour storm runoff event); or

b) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology in Section 5 of the CASQA's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.

2) Flow-based Criteria:
   a) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
   b) The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records.

California – Part E.12.f

Permit includes hydromodification management requirements for all regulated projects.

E.12.f. Hydromodification Management

(i) Task Description – Within the third year of the effective date of the permit, the Permittee shall develop and implement Hydromodification Management procedures. Hydromodification management projects are Regulated Projects that create and/or replace one acre or more of impervious surface. A project that does not increase impervious surface area over the pre-project condition is not a hydromodification management project.

(ii) Implementation Level - The Permittee shall implement the following Hydromodification Standard:

(a) Post-project runoff shall not exceed estimated pre-project flow rate for the 2-year, 24-hour storm in the following geomorphic provinces (Figure 1):

- Coast Ranges
- Klamath Mountains
- Cascade Range
- Modoc Plateau
- Basin and Range
- Sierra Nevada
- Great Valley

(b) Post-project runoff shall not exceed estimated pre-project flow rate for the 10-year, 24-hour storm in the following geomorphic provinces (Figure 1):

- Transverse Ranges
- Peninsular Ranges
- Mojave Desert
- Colorado Desert

Maryland – Part III.E

Permit requires permittees to comply with all state and local laws, regulations, ordinances, and procedures relating to the state's Stormwater Management Act and implementing regulations.

The Maryland Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland establishes a statewide stormwater management program. This statute, coupled with COMAR, requires that stormwater management for new development and redevelopment be addressed for any proposed project that disturbs five thousand (5,000) square feet or more of earth. Because Maryland has a stormwater management program in place that regulates new and redevelopment projects, MDE considers compliance with the State statute to be compliance with this minimum control measure, this general permit, and CFR.

EPA Note: For further information on Maryland's post-construction performance standard requirement, see *Compendium of MS4 Permitting Approaches – Part 2: Post Construction Standards* (EPA, 2016).

Colorado – Part I.E.4.a.iv.

Permit includes post-construction performance standards for water quality volume treatment/infiltration, runoff reduction, and pollutant removal.

iv. Control Measure Requirements: The permittee's requirements and oversight for applicable development sites must be implemented to address the selection, installation, implementation, and maintenance of control measures in accordance with requirements in Part I.B. The "base design standard" is the minimum design standard for new development and redevelopment. The control measures for applicable development sites shall meet one of the following base design standards listed below:

(A) WQCV Standard: The control measure(s) is designed to provide treatment and/or infiltration of the WQCV and:

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent, not to exceed 1 acre, of the applicable development site area when the permittee has determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street).

…

(B) Pollutant Removal Standard: The control measure(s) is designed to treat at a minimum the 80th percentile storm event. The control measure(s) shall be designed to treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30 mg/L or less.

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent not to exceed 1 acre of the applicable development site area when the permittee has determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street).

(C) Runoff Reduction Standard: The control measure(s) is designed to infiltrate into the ground where site geology permits, evaporate, or evapotranspire a quantity of water equal to 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration. This base design standard can be met through practices such as green infrastructure. "Green infrastructure" generally refers to control measures that use vegetation, soils, and natural processes or mimic natural processes to manage stormwater. Green infrastructure can be used in place of or in addition to low impact development principles.

Massachusetts Part 2.4.6.4.a.

Permit includes specific post-construction standards for different size development projects.

ii. The permittee shall develop or modify, as appropriate, an ordinance or other regulatory mechanism within two (2) years of the effective date of the permit to contain provisions that are as least as stringent as the following:

1. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.
2. The design of treatment and infiltration practices should follow the guidance in Volume 2 of the Massachusetts Stormwater Handbook, as amended, or other federally or State approved10 BMP design guidance.
3. Stormwater management systems on new development sites shall be designed to:
   a) Not allow new stormwater conveyances to discharge untreated stormwater in accordance with Massachusetts Stormwater Handbook Standard 1;
   b) Control peak runoff rates in accordance with Massachusetts Stormwater Handbook Standard 211;
   c) Recharge groundwater in accordance with Massachusetts Stormwater Handbook Standard 312;
   d) Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads as defined in the Massachusetts Stormwater Handbook in accordance with Massachusetts Stormwater Handbook Standard 5;
   e) Protect Zone II or Interim Wellhead Protection Areas of public water supplies in accordance with Massachusetts Stormwater Handbook Standard 613;
   f) Implement long term maintenance practices in accordance with Massachusetts Stormwater Handbook Standard 9; and
   g) Require that all stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site AND/OR
      2) Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved15 BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

West Virginia Part II.C.7e.11

Permit requires regulated sites to keep and manage on-site the first 1 inch of rainfall with no discharge to surface waters.

11) To manage the impact of stormwater on receiving waters, the program shall include site and neighborhood design elements implemented in tandem with watershed protection elements.
    (a) The permittee must implement and enforce via ordinance and/or other enforceable mechanisms the following requirements that keep and manage onsite the first 1 inch of rainfall from an average 24-hour storm preceded by 48 hours of no measurable precipitation or that provide equal benefits for quality water.
    (b) The first 1" of rainfall must be 100% managed with no discharge to surface waters except when the permittee allows an alternative approach as described below:
        (i) Stormwater is treated before release to surface waters via extended or engineered infiltration. Extended filtration practices that are designed to capture and manage up to one inch of rainfall may discharge through an underdrain system.
        (ii) The permittee develops and implements a program to collect payment in lieu of on-site retention, provided in-lieu funds are used for stormwater projects only.
        (iii) The permittee develops and implements an off-site mitigation program.
        (iv) The permittee develops and obtains approval of an alternative method of managing the first I" of rainfall. The method must be equally protective of water quality as the methods spelled out in the permit.

…

Montana Part II.A.5.a.vii.

Permit requires regulated sites to implement low impact development practices for the runoff generated from 0.5 inches of rainfall, which represents the 90th percentile storm event in Montana.

For new development or redevelopment projects greater than or equal to one acre, the program shall include a process, where such practices are practicable, to require the implementation of low impact development practices that infiltrate, evapotranspire, or capture for reuse the runoff generated from the first 0.5 inches of rainfall from a 24-hour storm preceded by 24 hours of no measurable precipitation. This process must be in place by January 1, 2012.

Massachusetts Part 2.3.6.a

Permit requires ordinance that requires new development to meet a series of specific design standards, including retention of 1 inch of runoff from the post-construction impervious surface area.

a. Permittees shall develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one or more acres and discharge into the permittees MS4 at a minimum. Permittees authorized under the MS4-2003 permit shall continue to implement and enforce their program and modify as necessary to meet the requirements of this part.

i. The permittee's new development/ redevelopment program shall include sites less than one acre if the site is part of a larger common plan of development or redevelopment which disturbs one or more acre.

ii. The permittee shall develop or modify, as appropriate, an ordinance or other regulatory mechanism within two (2) years of the effective date of the permit to contain provisions that are as least as stringent as the following:

1. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.
2. The design of treatment and infiltration practices should follow the guidance in Volume 2 of the Massachusetts Stormwater Handbook, as amended, or other federally or State approved10 BMP design guidance.
3. Stormwater management systems on new development sites shall be designed to:
   a) Not allow new stormwater conveyances to discharge untreated stormwater in accordance with Massachusetts Stormwater Handbook Standard 1;
   b) Control peak runoff rates in accordance with Massachusetts Stormwater Handbook Standard 211;
   c) Recharge groundwater in accordance with Massachusetts Stormwater Handbook Standard 312;
   d) Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads as defined in the Massachusetts Stormwater Handbook in accordance with Massachusetts Stormwater Handbook Standard 5;
   e) Protect Zone II or Interim Wellhead Protection Areas of public water supplies in accordance with Massachusetts Stormwater Handbook Standard 613;
   f) Implement long term maintenance practices in accordance with Massachusetts Stormwater Handbook Standard 9; and
   g) Require that all stormwater management systems be designed to:
      1) Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site AND/OR
      2) Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved15 BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

New York Part VII.A.5.a.i

Permit requires post-construction development to meet a numeric retention standard that is equivalent to the requirements contained in the state's Construction General Permit.

At a minimum, all covered entities must:

a. Develop (for newly authorized MS4s), implement, and enforce a program that:
   i. provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities (either GP-02-01, GP-0-08-001, or GP-0-15-002), unless more stringent requirements are contained within this SPDES general permit;

Connecticut Section 6(a)(5)(B)(i)

Permit requires retention of 1 inch of rainfall for new development sites and redevelopment sites with less than 40% of directly connected impervious area. For redevelopment, the standard is 0.5 inches.

(B) Runoff Reduction/Low Impact Development ("LID") Measures

Pursuant to the requirements of subsection 5(A)(i) above, the permittee shall require the party responsible (i.e. a developer within a municipal boundary or a developer/contractor with the institution) for development and redevelopment projects within its MS4 to:

(i) For development or redevelopment of sites that are currently developed with Directly Connected Impervious Area (DCIA) of forty percent or more, retain on-site half the water quality volume for the site.

(ii) For all new development and for redevelopment of sites with less than forty percent DCIA, retain the water quality volume for the site.

…

Arkansas Part 3.2.5.6

Permit requires pre-construction site plan review (for compliance with local requirements for post-construction management of stormwater) of 100 percent of projects.

3.2.5.6. Performance Standards. The post-construction SWMP shall include pre-construction site plan review (for compliance with local requirements for post-construction management of stormwater) of 100 percent of projects from construction activities that result in a land disturbance of greater than or equal to one acre to ensure that required controls are designed per requirements. These applicable sites shall be inspected to ensure that controls are installed per requirements. The program shall also ensure that long-term operation and maintenance (O&M) plans are developed and agreements in place for all applicable sites.

Georgia Part 4.2.5.1

Permit requires capture and treatment of 1.2 inches or rainfall and inspections of 100% of post-construction structures over the 5-year permit term.

For sites meeting the above criteria, the permittee shall ensure that the following minimum standards are implemented where practicable during the site plan preparation process:

Stormwater Runoff Quality/Reduction:

All stormwater runoff shall be adequately treated prior to discharge. The stormwater management system shall be designed to remove 80% of the average annual post-development total suspended solids (TSS) load as defined in the GSMM or in the equivalent manual. Compliance with this performance standard is presumed to be met if the stormwater management system is sized to capture and treat the water quality treatment volume, which is defined as the runoff volume resulting from the first 1.2 inches of rainfall from a site.

…

From Table 4.2.5(a) – measurable goal for BMP 3 – Inspection Program:

3.a. Conduct inspections of all post-construction stormwater management structures included on the inventory required in BMP #2 above, so that 100% of the structures are inspected within the 5-year permit term. The inspections should be completed in accordance with the schedule contained in the SWMP. Provide documentation of the inspections conducted during the reporting period in each annual report.

Good Housekeeping

Vermont – Part IV.H.6

Permit includes a list of specific municipal facilities subject to the good housekeeping minimum control measure (MCM). Soil test required before phosphorus fertilizer may be used. (Part IV.H.6.a)

a) The permittee must describe its operation and maintenance program for preventing or reducing pollutant runoff from small MS4 operations, including, at a minimum: new construction and land disturbance, maintenance of fleet and buildings, all municipal garages, parks, open space, construction and maintenance practices for gravel backroads, snow disposal and stormwater systems. The program must include a training component, maintenance schedules, and inspection procedures for long term structural controls. For all facilities under municipal control including public parks and recreational fields where lawn or garden fertilizers are used in the facility operation the permittee must prohibit the use of any phosphorus containing fertilizer unless warranted by a current soil test. If a phosphorus fertilizer is used, a copy of the soil test for those facilities must be performed annually and submitted with the annual report. This requirement does not apply to community gardens.

[EPA NOTE: The state includes additional requirements pertaining to any soil test that is taken.]

Permit requires the permittee to send the State list of municipal facilities subject to Industrial stormwater permits. (Part IV.H.6.a.2)

(2) The permittee must provide a list of industrial facilities that it owns or operates that discharge to its small MS4 and are subject to an individual NPDES permit or the Agency's General Permit 3-9003, Multi-Sector General Permit for Stormwater Discharges Associated With Industrial Activity (2011) (NPDES Number: VTR 050001), including facilities covered by a "no exposure certification". Include the permit number, a copy of the Industrial NOI form or the "no exposure" certification for each facility.

Western Washington – S5.C.5.d.

Permit specifies an inspection frequency and maintenance standards/schedule/protocol for municipal facilities and defines the compliance level at 95% of required inspections.

The minimum performance measures are:

a. Each Permittee shall implement maintenance standards that are as protective, or more protective, of facility function than those specified in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington.

For facilities which do not have maintenance standards, the Permittee shall develop a maintenance standard. Except for Permittees located in Lewis and Cowlitz Counties and the City of Aberdeen, no later than December 31, 2016, Permittees shall update their maintenance standards as necessary to meet the requirements of this section. For Permittees in Lewis and Cowlitz Counties, this requirement shall apply no later than June 30, 2017; for the City of Aberdeen this requirement shall apply no later than June 30, 2018.

i. The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all

times between inspections. Exceeding the maintenance standard between inspections and/or maintenance is not a permit violation.

ii. Unless there are circumstances beyond the Permittee's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:

- Within 1 year for typical maintenance of facilities, except catch basins.
- Within 6 months for catch basins.
- Within 2 years for maintenance that requires capital construction of less than $25,000.

Circumstances beyond the Permittee's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedance of the required timeframe, the Permittee shall document the circumstances and how they were beyond their control.

b. Annual inspection of all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities, and taking appropriate maintenance actions in accordance with the adopted maintenance standards. Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 Certification and Signature.

c. Spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24 hour storm event with a 10 year or greater recurrence interval). If spot checks indicate widespread damage/maintenance needs, inspect all stormwater treatment and flow control BMPs/facilities that may be affected. Conduct repairs or take appropriate maintenance action in accordance with maintenance standards established above, based on the results of the inspections.

d. Except for the City of Aberdeen, inspection of all catch basins and inlets owned or operated by the Permittee at least once no later than August 1, 2017 and every two years thereafter. For the City of Aberdeen, the deadline for this requirement shall be no later than June 30, 2018. Clean catch basins if the inspection indicates cleaning is needed to comply with maintenance standards established in the Stormwater Management Manual for Western Washington. Decant water shall be disposed of in accordance with Appendix 6 Street Waste Disposal. The following alternatives to the standard approach of inspecting all catch basins once no later than August 1, 2017 and every two years thereafter (except no later than June 30, 2018 and every two years thereafter for the City of Aberdeen) may be applied to all or portions of the system:

i. The catch basin inspection schedule of every two years may be changed as appropriate to meet the maintenance standards based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records for catch basins, the Permittee may substitute written statements to document a specific, less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experiences and shall be certified in accordance with G19 Certification and Signature.

ii. Inspections at least once by August 1, 2017 and every two years thereafter may be conducted on a "circuit basis" whereby 25% of catch basins and inlets within each circuit are inspected to identify maintenance needs. Include an inspection of the catch basin immediately upstream of any system outfall or discharge point, if applicable. Clean all catch basins within a given circuit for which the inspection indicates cleaning is needed to comply with maintenance standards established under S5.C.5.a, above.

iii. The Permittee may clean all pipes, ditches, catch basins, and inlets within a circuit once during the permit term. Circuits selected for this alternative must drain to a single point.

e. Compliance with the inspection requirements in b, c, and d above shall be determined by the presence of an established inspection program designed to inspect all sites and achieving at least 95% of inspections.

Western Washington – S5.C.5.h.

Permit requires that all heavy equipment maintenance or storage yards, and material storage facilities that are not covered by the state's industrial stormwater general permit implement a SWPPP.

h. Implement a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or another NPDES permit that authorizes stormwater discharges associated with the activity. A schedule for implementation of structural BMPs shall be included in the SWPPP. Generic SWPPPs that can be applied at multiple sites may be used to comply with this requirement. The SWPPP shall include periodic visual observation of discharges from the facility to evaluate the effectiveness of the BMP.

West Virginia – II.C.7.f.

Permit requires benchmark monitoring for municipal facilities that are not covered under an NPDES permit.

15) For Industrial facilities not covered under another WV /NPDES permit, the SWMP shall fully disclose the location type of activity, and potential pollutant sources.

16) The SWMP shall contain a benchmark monitoring plan for stormwater discharged from facilities or locations of municipal industrial activities.

(a) Pollutant concentrations above the benchmark could be detrimental to water quality or may adversely affect human health from ingestion of water or fish.

(b) Pollutant concentrations below the benchmark are to be viewed by the Permittee as indicating little potential for water quality concern.

(c) Levels above the benchmark shall trigger a review of the SWMP by the permittee to determine if alternative, more effective BMPs can be implemented. Reviews must be conducted within 30 days of the permittee's receipt of the laboratory or field results of stormwater analysis.

(d) The following parameters should be considered and incorporated as appropriate for municipal industrial activities:

Parameter	Cut-off Concentration	Measurement
BOD-5	30 mg/l	Once/Six month
COD	120 mg/l	Once/Six months
TSS	100 mg/l	Once/Six month
Ammonia Nitrogen	4 mg/l	Once/Six month
Oil & Grease	15 mg/l	Once/Six month
pH	6.0 – 9.00 s.u.	Once/Six month

(e) Permittees that receive stormwater discharges into their small MS4 from their sewage treatment plant property must, in addition to the above listed monitoring requirements, also meet the following monitoring requirements for those discharges:

Parameter	Cut-off Concentration	Measurement
Fecal Coliform, General	400 counts/100 ml	Once/Six months

This requirement does not apply to permittees with individual or general NPDES wastewater permit coverage that addresses stormwater discharges from the plant property.

(f) Permittees that receive discharges into their small MS4 from their facilities that store less than 50,000 tons of salt shall monitor for the following:

Parameter	Cut-off Concentration	Measurement
TSS	100 mg/l	Once/Six months
Chloride	860 mg/l	Once/Six months
Cyanide	Monitor & Report	Once/Six months
Total Iron	1.0 mg/l	Once/Six months

Maine – IV.H.6.a.

Permit specifies that public works facilities, transfer stations, and school bus maintenance facilities *must develop and implement a SWPPP which meets the conditions of the state's MSGP.*

vi. Permittees not subject to the 2008 MS4 General Permit shall by June 30, 2015, develop and implement a stormwater pollution prevention plan ("SWPPP") for the following municipal operations: public works facilities, transfer stations, and school bus maintenance facilities operated by the permittee unless the facility is currently regulated under Maine's Industrial Stormwater Program. The SWPPP must meet the conditions and requirements including quarterly visual monitoring per Maine's Multi-Sector General Permit ("MSGP") Stormwater Discharge Associated with Industrial Activity, published April 26, 2011. The SWPPP outlines sources of potential stormwater pollutants and the methods by which these pollutants will be reduced or prevented from entering Waters of

the State, other than groundwater, or to an MS4. The Plan identifies in writing a SWPPP team of facility personnel as well as a SWPPP team leader who is ultimately responsible for SWPPP implementation. The Department has developed a generic SWPPP for municipal operations which can be modified by the permittee for individual facilities as required by this permit. Contact the Municipal and Industrial Stormwater Coordinator for an electronic copy of the SWPPP, Quarterly inspection forms, visual monitoring forms or for technical assistance, including on-site assistance, to meet this permit obligation. Permittees subject to the 2008 MS4 General Permit shall continue to implement and update their SWPPP(s) to ensure it meets Maine's April 26, 2011 MSGP requirements including visual monitoring. The Department shall honor request for technical assistance including on-site technical assistance inspections and SWPPP training.

New Jersey – Part IV.F.7

The permit specifies a minimum street sweeping frequency.

a. Monthly Sweeping of Certain Streets in Predominantly Commercial Areas
   i. Minimum Standard - Tier A Municipalities shall sweep, at a minimum of once per month (weather and street surface conditions permitting) all streets (including roads or highways) that meet all of the following criteria:
      - the street is owned or operated by the municipality;
      - the street is curbed and has storm drains;
      - the street has a posted speed limit of 35 mph or less;
      - the street is not an entrance or exit ramp; and
      - the street is in a predominantly commercial area.

New Jersey – Part IV.F.7

The permit specifies frequency of catch basin inspection and cleaning.

d. Catch Basin Inspection and Cleaning
   i. Minimum Standard - Tier A Municipalities shall inspect all municipally owned and operated catch basins for accumulated sediment, trash, and debris; and clean those basins to remove sediment, trash, or debris (if any observed during inspection). Tier A Municipalities with:
      - less than 5,000 municipally owned and operated catch basins shall annually inspect and (to the extent noted above) clean at least 1,000 catch basins, or as many catch basins as the municipality owns and operates.
      - 5,000 or more municipally owned and operated catch basins shall inspect and (to the extent noted above) clean all catch basins by February 28, 2014.

New Jersey – Part IV.F.8

The permit requires specific BMPs for de-icing material storage.

a. De-icing Material Storage
   i. Minimum Standard - Tier A Municipalities shall store salt, and other de-icing materials in a permanent structure. Tier A Municipalities shall perform regular maintenance and inspections of both the permanent structure and the surrounding area

(see Good Housekeeping in Appendix D). Sand may be stored outside and uncovered if a 50-foot setback is maintained from storm sewer inlets, ditches or other stormwater conveyance channels, and surface water bodies.

California – Part E.11.e

The permit requires that permittees conduct inspections at permittee-owned and operated facilities at prescribed frequencies.

E.11.e. Inspections, Visual Monitoring and Remedial Action

(i) Task Description – Within the fifth year of the effective date of the Permit, the Permittee shall conduct regular inspections of Permittee-owned and operated facilities.

(ii) Implementation Level – Inspections shall be conducted as follows:

(a) Quarterly visual hotspot inspections – Perform quarterly visual inspections, in accordance with the inspection procedures and inspection checklist developed for each Permittee-owned or operated hotspot, to ensure materials and equipment are clean and orderly; to minimize the potential for pollutant discharge; and to ensure effective selection, implementation, and maintenance of BMPs. The Permittee shall look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The quarterly inspections shall be tracked in a log for every facility, and records kept with the SWPPP (records may be kept electronically). The inspection report shall also include any identified deficiencies and the corrective actions taken to correct the deficiencies.

(b) Annual Hotspot comprehensive inspections – At least once per year, the Permittee shall conduct a comprehensive inspection of each hotspot facility, including all storm water BMPs, in accordance with the facility-specific inspection procedures and inspection checklist. The Permittee shall pay specific attention, without limiting its attention, to: waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The annual inspection results shall be documented and records kept with the SWPPP. The inspection report shall also include any identified deficiencies and the corrective actions taken to correct deficiencies.

(c) Quarterly Hotspot visual observation of storm water and non-storm water discharges – At least once per quarter visually observe discharge locations from hotspot facilities. Where discharges are observed identify any observed problems (e.g., color, foam, sheen, turbidity) associated with pollutant sources or BMPs shall be remedied as soon as practicable or before the next storm event, whichever is sooner. Visual observations shall be documented, and records kept with the SWPPP. This inspection shall be done in accordance with the developed standard operating procedures. The inspection report shall also include any identified deficiencies and the corrective actions taken to correct the deficiencies.

(d) Non-Hotspot Inspection – At a minimum, inspect each inventoried municipal facility that is not a hotspot, once per permit term.

Connecticut – Section 6.E.i.

The permit requires that permittees provide secondary containment of deicing materials.

i. Deicing Material Management

Develop and implement standard operating practices for the use, handling, storage, application, and disposal of deicing products such as salt and sand to minimize exposure to stormwater; explore means to minimize the use and optimize the application of chloride-based or other salts or deicing product (while maintaining public safety) and evaluate opportunities for use of alternative materials; for any exterior containers of liquid deicing materials installed after the effective date of this permit, provide secondary containment of at least 110% of the largest container or 10% of the total volume of all containers, whichever is larger, without overflow from the containment area.

Massachusetts Part 2.4.7.2.

Permit requires that all maintenance garages, public works facilities, transfer stations, and waste handling facilities have a SWPPP and specifies the SWPPP contents.

2.4.7.2 - Stormwater Pollution Prevention Plan (SWPPP)

A SWPPP shall be developed and implemented for each of the following permittee-owned facilities: maintenance garages, public works facilities, transfer stations, and other waste handling facilities. If facilities are located at the same property, the permittee may develop one SWPPP for the entire property. The SWPPP is a separate and different document from the SWMP required in Part 1.10. A SWPPP does not need to be developed for a facility if the discharge from a permittee-owned facility is covered by a currently effective Multi-Sector General Permit or other NPDES permit.

a. One year from the effective date of the permit, the permittee shall develop and implement a written SWPPP for the facilities described above. The SWPPP shall be signed in accordance with the signatory requirements of Appendix B – Subparagraph 11.
b. The SWPPP shall contain the following elements:

…

Arkansas – Part 4.2.6.5

The permit requires "an annual employee training for all eligible employees" (and also defines the term "eligible employee") and requires annual inspections for specified types of municipal facilities.

3.2.6.4. Performance Standards. The pollution prevention/good housekeeping program shall include, at a minimum, an annual employee training for all eligible employees. An eligible employee is a new or veteran employee whose day-to-day work activities have the potential to impact stormwater quality. MS4s shall evaluate all current municipal-owned facilities to ensure that industrial general stormwater permit coverage (ARR000000), if needed, is obtained. This evaluation shall be included in the first annual report. Annual inspections for all municipal facilities not requiring industrial stormwater permit coverage are required for municipal facilities performing maintenance activities on mechanical equipment, facilities with fueling stations, facilities involved in waste storage, transfer or recycling, facilities with material stockpiles, and facilities storing fertilizers or pesticides. The operation and

maintenance program shall include appropriate procedures, controls, maintenance schedules and recordkeeping to address Part 3.2.6.3.3 of this permit.

North Dakota – Part IV.F.6.d.2

The permit requires MS4s to inspect at least 20% of outfalls, snow disposal areas, sediment basins and ponds each year.

2) At a minimum, inspect 20 percent of MS4 outfalls, snow disposal areas, sediment basins, and ponds each year on a rotating basis with all items inspected before the expiration of this permit. Document inspection findings such as sediment accumulation, algae growth, color, odor, and other signs of pollution. In addition, document any observable non-stormwater discharge that may be present.

Utah – Part 4.2.6.5

The permit requires inspections of "high priority" municipal facilities at specified frequencies.

4.2.6.5. The following inspections shall be conducted at "high priority" Permittee-owned or operated facilities:

4.2.6.5.1 Weekly visual inspections: The Permittee must perform weekly visual inspections of "high priority" facilities in accordance with the developed SOPs to minimize the potential for pollutant discharge. The Permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility and records kept with the SWMP document. The inspection log should also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

4.2.6.5.2 Quarterly comprehensive inspections: At least once per quarter, a comprehensive inspection of "high priority" facilities, including all storm water controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SWMP document. This inspection must be done in accordance with the developed SOPs. An inspection report must also include any identified deficiencies and the corrective actions taken to remedy the deficiencies.

4.2.6.5.3 Quarterly visual observation of storm water discharges: At least once per quarter, the Permittee must visually observe the quality of the storm water discharges from the "high priority" facilities (unless climate conditions preclude doing so, in which case the Permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied to prevent discharge to the storm drain system. Visual observations must be documented and records kept with the SWMP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to remedy the deficiencies.

Monitoring

Tennessee – Part 5.1

The permit requires biological stream sampling for each impaired stream segment in a five-year period.

5.1. Analytical monitoring

The permittee shall perform analytical monitoring in compliance with the requirements in Option 1 below, or develop a jurisdiction-specific monitoring plan in compliance with the objectives in Option 2 below. Regardless of the option chosen, the permittee shall perform monitoring as prescribed for stream segments subject to EPA approved TMDLs as applicable to MS4 jurisdictions.

Option 1 - The permittee shall perform analytical monitoring as a part of its Stormwater Management Program within the MS4 program area. At a minimum, this monitoring shall be conducted in streams with unavailable parameters for nutrients, pathogens, siltation, or other MS4 pollutants of concern specifically required by the division, according to section 4.4.2.

For stream segments identified by the division as waters with unavailable parameters for siltation, habitat alteration and/or nutrients, biological stream sampling and habitat assessment must be performed utilizing the Semi-Quantitative Single Habitat (SQSH) Method as identified in the division's most current version of the Quality System Standard Operating Procedure for Macroinvertebrate Stream Survey. At least one sample per stream segment must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period.

For stream segments identified by the division as waters with unavailable parameters for pathogens, bacteriological stream sampling must be performed utilizing methods identified in the division's most current version of the Quality System Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water. Monitoring shall include the collection of five samples within a thirty-day period (to establish a geometric mean), and be performed during the summer (March through November). Corresponding flow measurement is recommended but not required. At least one series of five samples per stream segment must be collected, with all segments within the MS4 jurisdiction sampled in a five-year period.

Western Washington – S8.B.

Permit requires certain permittees to conduct status and trends monitoring, stormwater management program effectiveness studies, and source identification and diagnostic monitoring. For each of the status and trends monitoring, stormwater management program effectiveness studies, the permit gives the permittee the option of conducting the monitoring/analyses themselves or paying into a collective fund for Ecology to conduct the sampling. The permittees are required to pay into a fund for the source identification and diagnostic monitoring.

Status and trends monitoring. By December 1, 2013, each city and county Permittee listed in S1.D.2.a(i) and S1.D.2.a(ii) located in Clallam, Island, King, Kitsap, Pierce, Skagit, Snohomish, Thurston, or Whatcom County shall notify Ecology in writing which of the following two options for status and trends monitoring the Permittee chooses to carry out during this permit cycle. Either option will fully satisfy the Permittee's obligations under this section (S8.B). Each Permittee shall select a single option for the duration of this permit term.

1. Status and Trends Monitoring Option #1: Each Permittee that chooses this option shall pay into a collective fund to implement RSMP small streams and marine nearshore status and trends monitoring in Puget Sound. The payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are (Permittees are listed alphabetically, by county):

   [TABLE OF PERMITTEE AND ANNUAL PAYMENT AMOUNT]

   Or

2. Status and Trends Monitoring Option #2: Each Permittee that chooses this option shall conduct status and trends monitoring as follows:
   a. Beginning no later than October 31, 2014, conduct wadeable stream water quality, benthos, habitat, and sediment chemistry monitoring according to the Ecology-approved Quality Assurance Project Plan (QAPP) for RSMP Small Streams Status and Trends Monitoring.
      i. Permittees with population less than 10,000 in the permit coverage area shall conduct this monitoring at the first two qualified monitoring locations (as listed sequentially among the potential monitoring locations defined in the RSMP QAPP) that are located within the jurisdiction's boundaries. Counties shall monitor the first location inside UGA boundaries and the first location outside UGA boundaries.
      ii. Permittees with population equal to or greater than 10,000 and fewer than 50,000 in the permit coverage area shall conduct this monitoring at the first four qualified monitoring locations (as listed sequentially among the potential monitoring locations defined in the RSMP QAPP) that are located within the jurisdiction's boundaries. Counties shall monitor the first two locations inside UGA boundaries and the first two locations outside UGA boundaries.
      iii. Permittees with population equal to or greater than 50,000 in the permit coverage area shall conduct this monitoring at the first eight qualified monitoring locations (as listed sequentially among the potential monitoring locations defined in the RSMP QAPP) that are located within the jurisdiction's boundaries. Counties shall monitor the first four locations inside UGA boundaries and the first four locations outside UGA boundaries.

      Permittees with population equal to or greater than 50,000 in the permit coverage area and located entirely inland (i.e., having no Puget Sound shoreline boundary) shall conduct this monitoring at an additional four monitoring locations (as listed sequentially among the potential monitoring locations defined in the RSMP QAPP), for a total of 12 monitoring locations.

      If fewer than the total required number (8 or 12) of monitoring locations located in the Permittees' coverage area meet the criteria for sampling defined in the RSMP QAPP, then the Permittee shall conduct this monitoring at all of the monitoring locations that meet the criteria.

   And

   b. Beginning no later than October 1, 2015, Permittees with Puget Sound shoreline shall conduct sediment chemistry, mussel, and bacteria monitoring according to the

Ecology-approved QAPPs for RSMP Marine Nearshore Status and Trends Monitoring.

i. Permittees with population less than 10,000 shall conduct this monitoring at the first two qualified monitoring locations each, for sediment and for mussels and bacteria (as listed sequentially among the potential monitoring locations defined in the RSMP QAPPs), that are located adjacent to the jurisdiction's Puget Sound shoreline boundary.

ii. Permittees with population equal to or greater than 10,000 and fewer than 50,000 in the permit coverage area shall conduct this monitoring at the first four qualified monitoring locations each, for sediment and for mussels and bacteria (as listed sequentially among the potential monitoring locations defined in the RSMP QAPPs), that are located adjacent to the jurisdiction's Puget Sound shoreline boundary. Permittees with population equal to or greater than 50,000 in the permit coverage area shall conduct this monitoring at the first six qualified monitoring locations each, for sediment and for mussels and bacteria (as listed sequentially among the potential monitoring locations defined in the RSMP QAPPs), that are located adjacent to the jurisdiction's Puget Sound shoreline boundary.

And

c. Data and analyses shall be reported annually in accordance with the Ecology-approved QAPPs.

C. Stormwater management program effectiveness studies. By December 1, 2013, each city and county Permittee listed in S1.D.2.a(i) and S1.D.2.a(ii) shall notify Ecology in writing which of the following two options for effectiveness studies the Permittee chooses to carry out during this permit cycle. Either option will fully satisfy the Permittee's obligations under this section (S8.C). Each Permittee shall select a single option for the duration of this permit term.

1. Effectiveness Studies Option #1: Each Permittee that chooses this option shall pay into a collective fund to implement RSMP effectiveness studies. The payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are (Permittees are listed alphabetically, by county):

[TABLE OF PERMITTEE AND ANNUAL PAYMENT AMOUNT]

Or

2. Effectiveness Studies Option #2: Each Permittee that chooses this option shall conduct stormwater discharge monitoring in accordance with Appendix 9 and the following:

a. By February 2, 2014, each Permittee shall submit to Ecology a draft stormwater discharge monitoring QAPP for review and approval. If Ecology does not request changes within 90 days, the draft QAPP is considered approved. Final QAPPs shall be submitted to Ecology as soon as possible following finalization.

i. Each Permittee with population fewer than 10,000 in the permit coverage area shall conduct stormwater discharge monitoring at one discharge monitoring location.

ii. Each Permittee with population equal to or greater than 10,000 but fewer than 50,000 in the permit coverage area shall conduct stormwater discharge monitoring at two discharge monitoring locations.

iii. Each Permittee with population equal to or greater than 50,000 but fewer than 100,000 in the permit coverage area shall conduct stormwater discharge monitoring at three discharge monitoring locations.

iv. Each Permittee with population 100,000 or more in the permit coverage area shall conduct stormwater discharge monitoring at four discharge monitoring locations.

b. Permittees shall document in the QAPP why selected discharge monitoring locations are of interest for long term stormwater discharge monitoring and associated stormwater management program effectiveness evaluations.

Permittees are encouraged to monitor at locations chosen and submitted in the annual reports that were due March 31, 2011.

c. Flow monitoring at discharge monitoring locations shall be implemented beginning no later than October 1, 2014. Stormwater discharge monitoring shall be fully implemented no later than October 1, 2015. All monitoring shall be conducted in accordance with an Ecology-approved QAPP.

D. Source identification and diagnostic monitoring. Each city and county Permittee listed in S1.D.2.a(i) and S1.D.2.a(ii) shall pay into a collective fund to implement the RSMP Source Identification Information Repository (SIDIR). The payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are (Permittees are listed alphabetically, by county):

Connecticut – Section 6(h)

Permit requires all permittees to monitor six outfalls for 13 different parameters. NOTE: Permit does not specify frequency of sampling required.

(1) Schedule of Monitoring

(A) Stormwater monitoring shall be conducted by the Regulated Small MS4 annually starting in 2004. At least two outfalls apiece shall be monitored from areas of primarily industrial development, commercial development and residential development, respectively, for a total of six (6) outfalls monitored. Each monitored outfall shall be selected based on an evaluation by the MS4 that the drainage area of such outfall is representative of the overall nature of its respective land use type.

(B) The municipality may submit a request to the Commissioner in writing for implementation of an alternate sampling plan of equivalent or greater scope. The Commissioner will approve or deny such a request in writing.

(2) Parameters to be monitored

The parameters to be monitored for each discharge point shall include:

pH (SU)
Hardness (mg/l)
Conductivity (µmos)
Oil and grease (mg/l)

Chemical Oxygen Demand (mg/l)
Turbidity (NTU)
Total Suspended Solids (mg/l)
Total Phosphorous (mg/l)
Ammonia (mg/l)
Total Kjeldahl Nitrogen (mg/l)
Nitrate plus Nitrite Nitrogen (mg/l)
E. coli (col/100ml)
In addition to this list of parameters, uncontaminated rainfall pH shall be measured at the time the runoff sample is taken.

(3) Stormwater Monitoring Procedures

(A) Samples shall be collected from discharges resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours after any previous storm event of 0.1 inch or greater. Runoff events resulting from snow or ice melt cannot be used to meet the minimum annual monitoring requirements. Grab samples shall be used for all monitoring. Grab samples shall be collected during the first 6 hours of a storm event discharge. The uncontaminated rainfall pH measurement shall also be taken at this time. Samples for all discharges shall be taken during the same storm event.

New Mexico (Middle Rio Grande) – Part III.A.1

Permit requires monitoring at least ten times over permit term.

1. Wet Weather Monitoring: The permittees shall conduct wet weather monitoring to gather information on the response of receiving waters to wet weather discharges from the MS4 during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Wet Weather Monitoring shall be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations at each water of the US that runs in each entity or entities' jurisdiction(s). Permittees may choose either Option A or Option B below:

   a. Option A: Individual monitoring

      (i) Class A: Perform wet weather monitoring at a location coming into the MS4 jurisdictional area (upstream) and leaving the MS4 jurisdictional area (downstream), see Appendix D. Monitor for TSS, TDS, COD, BOD5, DO, oil and grease, E.coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Phase I permittees must include additional parameters from monitoring conducted under permit NMS000101 (from last 10 years) whose mean values are at or above a WQS. Permittee must sample these pollutants a minimum of 10 events during the permit term with at least 5 events in wet season and 4 events in dry season.

Reporting

Tennessee – Part 5.4

The permit provides an annual reporting form as an appendix to the permit.

> The permittee must submit an annual report to the appropriate EFO by September 30 of each calendar year that covers the previous reporting year (July 1 through June 30). The permittee may fulfill this requirement by submitting the report via water.permits@tn.gov. Prior to submitting the annual report to the division, the permittee must present the annual report to the public for suggestions and comment. This may be done through any public communication method the permittee chooses such as a public hearing or by publishing a draft annual report on the permittee's website. The permittee should respond to any comments received. The annual report form is found in Appendix B and on the division's website.

Western Washington – S9.A.

As part of the annual reporting process, permittees must complete a form online and submit electronically.

> Permittees must submit annual reports electronically using Ecology's Water Quality Permitting Portal (WQWebPortal) available on Ecology's website at:
>
> http://www.ecy.wa.gov/programs/wq/permits/paris/portal.html unless otherwise directed by Ecology.

BMP Manual References

Note: Some BMP Manual references are also included in the construction or post-construction sections above.

Vermont – Part IV.H.5

Permit requires that permittees require post-construction BMPs meet the state's stormwater management manual.

Post-construction minimum measure requirements reference state rules "pursuant to 10 V.S.A. 1263, 1264 and Agency rules and procedures adopted there under, the Secretary is required to regulate post-construction stormwater runoff from activities that…" (Part IV.H.5.a) and also references the state's stormwater manual "Utilizes a combination of structural, non-structural and low impact BMPs… and meet, at a minimum, requirements in the Agency's 2002 Vermont State Stormwater Management Manual (and any amendments thereto)." (Part IV.H.5.e(2))

http://www.anr.state.vt.us/dec/waterq/stormwater/docs/sw_manual-vol1.pdf

http://www.anr.state.vt.us/dec/waterq/stormwater/docs/sw_manual-vol2.pdf

From EPA 2016 *Compendium of MS4 Permitting Approaches – Part 2: Post Construction Standards*: The manual includes a ground water recharge volume standard that is determined as a function of annual pre-development recharge for a given soil group, average annual rainfall volume, and amount of impervious cover at a site. The ground water recharge standard can be met by one of two methods, or a combination of both. The first is designated as the percent volume method, and is based on infiltrating the recharge volume using one or more approved structural stormwater treatment practices. The second method is designated as the percent area method, and is based on draining runoff from some or all of the site impervious area through one or more approved nonstructural stormwater treatment practices. The manual also includes a water quality treatment standard that requires water quality treatment of 90% of annual storms based on removing total suspended solids (TSS) and total phosphorus (TP). The State of Vermont directly regulates post-construction stormwater runoff from activities that result in creation of new or expansion of existing impervious surface of more than an acre; regardless of whether the site discharges to an MS4 or directly to a waterbody. Consequently, the MS4 program must only regulate those sites that fall below the impervious cover threshold but disturb at least one acre of land or less if it is a part of a common plan of development.

Western Washington – Part S5.C.7.b.1.

The Western Washington Phase II MS4 permit references the Stormwater Management Manual for Western Washington *throughout the permit for minimum standards, design standards, guidance, etc.*

http://www.ecy.wa.gov/programs/wq/stormwater/manual.html. For example (source control requirements):

The requirements of this subsection are met by using the source control BMPs in Volume IV of the Stormwater Management Manual for Western Washington, or a functionally equivalent manual approved by Ecology.

West Virginia – Part II.C.7.d.5.a

The West Virginia Phase II Permit references and requires the implementation of BMPs which are consistent with West Virginia's Erosion and Sediment Control BMP Manual or other manuals listed in the permit's Appendix D.

5) The regulatory mechanism shall authorize the permittee to:

(a) Implement erosion and sediment control BMPs that are consistent with West Virginia's Erosion and Sediment Control BMP Manual or other manuals listed in Appendix D,

New York – Part VII.A.5.a.iv

Permit specifies that to meet MEP a post-construction practice must be designed and installed according to NYS Stormwater Management Design Manual or equivalent.

if a stormwater management practice is designed and installed in accordance with the New York State Stormwater Management Design Manual or has been demonstrated to be equivalent and is properly operated and maintained, then MEP will be assumed to be met for post-construction stormwater discharged by the practice;

New Jersey – Part I.F.3

Permit requires permittees to implement and enforce a program to address stormwater runoff from new development and redevelopment and adopt ordinances according to state stormwater management rule, N.J.A.C. 7:8-4, to control stormwater from nonresidential development and redevelopment projects. In addition, the permittee must ensure that any residential development and redevelopment projects that are subject to the Residential Site Improvement Standards for stormwater management (N.J.A.C. 5:21-7) comply with those standards.

vii. This post-construction program shall also require compliance with the applicable design and performance standards established under N.J.A.C. 7:8 for major development, unless:

- Those standards do not apply because of a variance or exemption granted under N.J.A.C. 7:8; or
- Alternative standards are applicable under an areawide or Statewide Water Quality Management Plan adopted in accordance with N.J.A.C. 7:15.

From EPA 2016 *Compendium of MS4 Permitting Approaches – Part 2: Post Construction Standards*: The New Jersey standard for ground water recharge requires that 100% of the average annual pre-construction ground water recharge volume for the site is maintained. For the purpose of calculating runoff coefficients and ground water recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. This ground water recharge requirement does not apply to previously developed portions of sites in urban redevelopment areas. The New Jersey standard for water quality provides that stormwater management measures are to be designed to reduce the post-construction load of TSS in stormwater runoff generated from the water quality design storm by 80% of the anticipated load from the developed site, expressed as an annual average.

Maryland – Part III.E

Permit requires permittees must implement and comply with the principles, methods, and practices found in the 2000 Maryland Stormwater Design Manual*, Volumes 1 and 2.*

Additionally, permittees must implement and comply with the principles, methods, and practices found in the "2000 Maryland Stormwater Design Manual, Volumes I & II." Permittees must either administer an effective stormwater management program according to COMAR or accept the program that is being implemented by its respective County.

From EPA 2016 *Compendium of MS4 Permitting Approaches – Part 2: Post Construction Standards*: The manual specifies that environmental site design (ESD) shall be implemented to the maximum extent practicable (MEP) to mimic pre-development conditions. The standard for characterizing pre-development runoff characteristics for new development projects is woods in good hydrologic condition. ESD practices are to be used to the MEP to meet the required water quality volume and the ground water recharge volume. The water quality volume is defined as the runoff volume from the 1-inch rain event in the Maryland Eastern Rainfall Zone and 0.9 inch in the Maryland Western Rainfall Zone. The manual includes a redevelopment policy that provides flexibility and alternative requirements for sites with more than 40% impervious area.

Other Requirements

This section includes other MS4 permit requirements that are "clear, specific and measurable".

Vermont

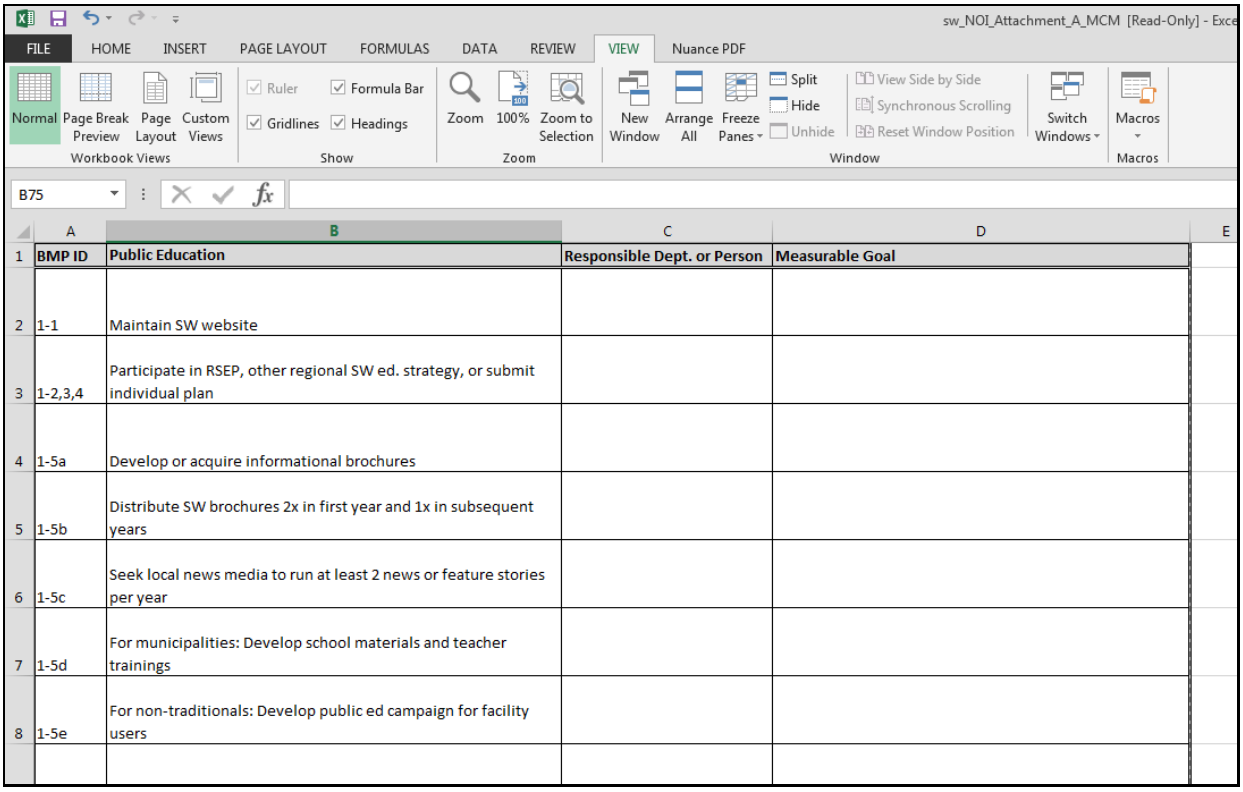
As part of NOI, state includes two attachments:

Attachment A: Selected Minimum Control Measures

Attachment B: Minimum Control Measure Implementation Timeframe

Each is an Excel spreadsheet that lists the different BMPs for each MCM from the permit, and asks for responsible person and measurable goal, as well as information on when each BMP will be implemented.

See Permit Documents and Forms at http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/ms4-permit (example from Attachment A follows):



BMP ID	Public Education	Responsible Dept. or Person	Measurable Goal
1-1	Maintain SW website		
1-2,3,4	Participate in RSEP, other regional SW ed. strategy, or submit individual plan		
1-5a	Develop or acquire informational brochures		
1-5b	Distribute SW brochures 2x in first year and 1x in subsequent years		
1-5c	Seek local news media to run at least 2 news or feature stories per year		
1-5d	For municipalities: Develop school materials and teacher trainings		
1-5e	For non-traditionals: Develop public ed campaign for facility users		

California – Part E.6.a and b

Permit includes 1.5 page-long list of requirements that MS4 must have adequate legal authority for, as well as a requirement to certify that the MS4 has and will maintain full legal authority to implement the permit. For example:

E.6.a. Legal Authority

(i) Task Description – Within the second year of the effective date of the permit, the Permittee shall review and revise relevant ordinances or other regulatory mechanisms, or adopt any new ordinances or other regulatory mechanisms, to obtain adequate legal authority, to the extent allowable under state or local law, to control pollutant discharges into and from, as applicable, its MS4, and to meet the requirements of this Order.

(ii) Implementation Level – At a minimum, the Permittee shall have adequate legal authority to:

(a) Effectively prohibit non-storm water discharges through the MS4. Exceptions to this prohibition are NPDES-permitted discharges of non-storm water and non-storm water discharges in B.3 that are considered non-significant contributors of pollutants. Where the non-storm water discharge is to a segment of an MS4 that discharges directly to an ASBS, exceptions to the non-storm water prohibition are specified in Attachment C.

(b) Detect and eliminate illicit discharges and illegal connections to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-storm water discharges not otherwise authorized in this Order, including discharges from organized car washes, mobile cleaning and pressure wash operations,

(c) Respond to the discharge of spills, and prohibit dumping or disposal of materials other than storm water into the MS4.

(d) Require parties responsible for runoff in excess of incidental runoff to implement Discharge Prohibition B.4.a-e.

(e) Require operators of construction sites, new or redeveloped land; and industrial and commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, or maintenance of BMPs consistent with the California Storm Water Quality Association (CASQA) Best Management Practice Handbooks or equivalent.

…

California – Part E.6.c.(iii)(d)

Permit requires MS4s to report non-filers within 30 days.

(d) NPDES Permit Referrals–For those construction projects or industrial facilities subject to the State's Construction General Permit (CGP) or Industrial General Permit (IGP), the Permittee shall:

1) Refer non-filers (i.e., those facilities that cannot demonstrate that they obtained permit coverage) to the appropriate Regional Water Board within 30 days of making that determination, or file a complaint on the State Water Board's website: http://www.dtsc.ca.gov/database/CalEPA_Complaint/index.cfm. In making such referrals, at a minimum include the following documentation:

a) Construction project or industrial facility location.
b) Name of owner or operator.
c) Estimated construction project size or type of industrial activity (including the Standard Industrial or the North American Industry Classification, if known).
d) Records of communication with the owner or operator regarding filing requirements.

California – Part VII.A.4.b

Permit includes specific reporting requirements for each of the six minimum measures (construction example included below).

Required SWMP Reporting

b. Program implementation reporting for continuing covered entities (MS4s covered for 3 or more years on the reporting date). At a minimum, the covered entity shall report on the items below:
   i. number of SWPPPs reviewed;
   ii. number and type of enforcement actions;
   iii. percent of active construction sites inspected once;
   iv. percent of active construction sites inspected more than once;
   v. number of construction sites authorized for disturbances of one acre or more; and
   vi. report on effectiveness of program, BMP and measurable goal assessment.