Chapter 3: Construction Stormwater Permit Requirements

3.1 Introduction & Trends

Construction Stormwater Permit Requirements

In an effort to benchmark federal and state policies related to construction stormwater programs, the U.S. Environmental Protection Agency (EPA), state agencies, and EPA regional offices were surveyed with regards to their construction stormwater permit requirements. The survey focused on specific best management practices (BMP) recommendations, BMP Selection Process methods, evaluation of BMP effectiveness, monitoring requirements, and permit enforcement. The survey elicited 16 responses, including: EPA Region 9, CT, FL, KS, LA, MA, MT, NC, ND, OH, OR, TX, UT, VT, VA, and WA. This report contains survey responses as well as supplemental information gathered from agency websites.

According to the survey responses, 39% (7 of 18 agencies) require operators to install specific stormwater BMPs. An additional 39% (7 of 18 agencies) have incorporated BMP recommendations into their construction stormwater permits that operators can implement on a voluntary basis. 22% (4 of 18 agencies) have not developed specific stormwater BMP requirements. State agencies that have developed specific stormwater BMP requirements draw from several sources of information when developing these requirements. 38% (3 of 8 agencies) rely on agency studies, 63% (5 of 8 agencies) rely on industry studies, 25% (2 of 8 agencies) rely on product specifications, and 75% (6 of 8 agencies) rely on site inspections (75%) when developing BMP requirements. Furthermore, only 17% (4 of 18 agencies) require parameter-specific monitoring of stormwater discharges. The only parameters that agencies may require operators to monitor include turbidity, total suspended solids (TSS), and pH. Among the state agencies surveyed, only North Carolina and Ohio make a distinction in their regulatory approach between wetlands and other water bodies and have developed specific stormwater regulations that only pertain to wetlands.

Construction Nonpoint Source (NPS) Pollution Requirements

In an effort to benchmark federal and state policies related to nonpoint source (NPS) pollution management, the U.S. Environmental Protection Agency (EPA), state agencies, and EPA regional offices were surveyed with regards to their NPS pollution programs. The survey focused on specific best management practices (BMP) recommendations, BMP selection, evaluation of BMP effectiveness, monitoring requirements, and permit enforcement. The survey elicited 17 responses, including: EPA Region 3, EPA Region 9, IA, IN, KS, LA, ME, MO, MN, NC, ND, NJ, NM, NV, OR, VA, and VT. This report contains survey responses as well as supplemental information gathered from agency websites.

According to the results of the survey, 90.5% (19 of 21 agencies) recommend specific BMPs for the purpose of managing NPS pollution associated with earth change activities. Among the agencies that recommend specific BMPs, 69% (11 of 16 agencies) recommend BMPs for agricultural earth change activities, 81% (13 of 16 agencies) recommend BMPs for urban earth change activities, and 43% (6 of 14 agencies) recommend BMPs for forestry-related earth change activities. State agencies that have developed specific stormwater BMP requirements draw from several sources of information when developing BMP requirements. 60% (9 of 15 agencies) rely on agency studies, 47% (7 of 15 agencies) rely on industry research, 27% (4 of 15 agencies) rely on product specifications, and 67% (10 of 15 agencies) rely on site inspections when developing BMP requirements. Furthermore, only 29% (5 of 17

agencies) require parameter-specific monitoring of NPS pollution associated with urban earth change activities. 41% (7 of 15 agencies) recommend monitoring of NPS pollution, while 29.4% (5 of 15 agencies) do not require or recommend monitoring of NPS pollution. The only parameters that agencies may require operators to monitor include turbidity, total suspended solids (TSS), total phosphorus, oil and grease, and dissolved oxygen, and pH. Among the state agencies surveyed, 88% (15 of 17 agencies) do not make a distinction in their approaches between wetlands and other water bodies and thus have not developed specific NPS regulations that only pertain to wetlands.

3.2 Construction Stormwater Permit Requirements

3.2.1 Criteria for Regulation of Stormwater Discharges

U.S. EPA Region 9

The National Pollutant Discharge Elimination System (NPDES) construction stormwater permit developed by the U.S. EPA specifies narrative standards, design standards, and stormwater BMPs.[1]

Connecticut

The NPDES construction stormwater permit developed by the Connecticut Department of Environmental Protection (CT DEP) specifies narrative standards, design standards, and specific stormwater BMPs.[2]

Florida

The Florida Department of Environmental Protection's (FL DEP) construction stormwater permit contains narrative standards and specific BMP requirements[3].

Indiana

The Indiana Department of Environmental Management's (IDEM) construction stormwater permit contains performance standards, but excludes narrative standards, design standards, or specific stormwater BMPs.

Iowa

The Iowa Department of Natural Resources' (IA DNR) construction stormwater permit contains recommended performance standards, narrative standards, and recommended stormwater BMPs.

Kansas

The NPDES construction stormwater permit developed by the Kansas Department of Health and Environment (KDHE) does not include narrative standards, design standards, performance standards, specific BMP requirements or numeric limits.[4]

Massachusetts

The Massachusetts Department of Environmental Protection (MA DEP) does not have NPDES primacy, and the U.S. EPA administers the state's NPDES stormwater permitting program.[5]

Michigan

The Michigan Department of Environmental Quality's (MI DEQ) construction stormwater permit includes narrative standards only[6].

Montana
The NPDES construction stormwater permit developed by the Montana Department of Environmental Quality (MT DEQ) specifies narrative standards.[7]

North Carolina
The NPDES construction stormwater permit developed by the North Carolina Department of Environment and Natural Resources' (NC DENR) specifies design standards that apply to stormwater, erosion, and sedimentation BMPs. Furthermore, NC DENR's Erosion and Sedimentation Act establishes regulatory requirements for controlling erosion and sedimentation due to construction activities.[8]

North Dakota
The North Dakota Department of Health's (ND DoH) NPDES construction stormwater permit includes narrative standards, design standards, and specific BMP requirements.[9]

Ohio
The Ohio Environmental Protection Agency's (OH EPA) NPDES construction stormwater permit includes narrative standards, design standards, and performance standards that apply to stormwater, erosion, and sedimentation BMPs. OH EPA also requires operators to install specific stormwater BMPs for the purpose of controlling stormwater associated with permitted construction activities.[10]

Oregon
The Oregon Department of Environmental Quality's (OR DEQ) NPDES construction stormwater permit includes narrative standards and specific stormwater BMP recommendations.[11]

Texas
The NPDES construction stormwater permit developed by the Texas Commission on Environmental Quality (TCEQ) specifies narrative standards, design standards, and BMPs.[12]

Utah
The NPDES construction stormwater permit developed by the Utah Department of Environmental Quality (UT DEQ) specifies narrative standards and design standards.[13]

Virginia
The NPDES construction stormwater permit developed by the Virginia Department of Conservation and Recreation (VA DCR) specifies performance standards for stormwater BMPs.[14]

Vermont
The NPDES construction stormwater permit developed by the Vermont Department of Environmental Conservation (VT DEC) specifies narrative standards, design standards, and BMPs.[15]

Washington
The Washington Department of Ecology (WA DOE) has developed a stormwater permit that specifies narrative standards, design standards, performance standards, specific BMPs, and benchmarks.[16]

3.2.2 BMP Requirements & Recommendations

EPA Region 9

Specific BMP Recommendations

Region 9 issues the "Final 2008 Construction General Permit," which was developed by U.S. EPA Headquarters (HQ). This permit requires operators to install specific stormwater BMPs for the purpose of managing stormwater associated with construction activities.[17] The stormwater BMP requirements are the same for all types of construction activities, but the requirements vary according to the number of acres disturbed.[18]

For construction activities that disturb 10 or more acres, operators must install sedimentation basins capable of storing run-off produced by a 2-year, 24-hour storm. If the installation of a temporary sediment basin or analogous BMP is not feasible, the operator must install smaller sediment basins or sediment traps. In addition to sediment traps, operators must install silt fences, vegetative buffer strips, or analogous sediment control BMPs on all down slope boundaries and at side slope boundaries where appropriate.[19]

For construction activities that disturb less than 10 acres, operators must, at a minimum, install: silt fences, vegetative buffer strips, or analogous sediment control BMPs on all down slope boundaries and on side slope boundaries where appropriate. As an alternative, operators may choose to install a sediment basin capable of storing the runoff generated by a 2-year, 24-hour storm event.[20] Additional stormwater, erosion, and sedimentation control BMPs are specified in the permit. Operators are required to implement BMPs to address off-site sediment tracking and dust control, runoff management, erosive velocity control, post-construction stormwater management, construction and waste materials control, non-construction wastes control, erosion control and stabilization, etc.[21]

BMP Selection Process

The Region 9 Office does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of stormwater BMPs.

Application Process

U.S. EPA Region 9 issues the "Final 2008 Construction General Permit" that was developed by EPA HQ. The general permit contains information about required "sediment controls" and lists categories of stormwater BMPs which operators must install as part of their Stormwater Pollution Prevention Plans (SWPPPs).[22] Operators and permit applicants may also refer to a stormwater BMP manual that contains detailed information about the required/recommended stormwater BMPs.[23]

EPA Region 9 has developed an interactive electronic map that permit applicants can use to locate 303(d) listed water bodies and outstanding resource waters (ORWs).

Evaluating BMP Effectiveness at Permitted Sites

There is no information available regarding the agency's procedure for evaluating BMP effectiveness.

Evaluating BMP Effectiveness at Non-Permitted Sites

U.S. EPA Region 9 does not inspect construction activities that are not permitted under the NPDES construction stormwater permitting program.[24]

Arkansas*

Specific BMP Recommendations

The Arkansas Department of Environmental Quality (AR DEQ) has developed specific stormwater BMP recommendations and requirements for the purpose of managing stormwater associated with construction activities. AR DEQ's construction stormwater permit contains a list of possible stabilization practices, structural practices, and post-construction practices that operators may choose to install. Requirements pertaining to sediment basins and velocity dissipation devices are also included in the permit, and the requirements are nearly identical to those specified in the U.S. EPA's general stormwater permit.[25]

AR DEQ has also developed setback requirements to protect riparian buffer zones. For construction activities that involve clearing and grading, operators are required to maintain a 25 foot buffer between the bank of an adjacent water body and the boundary of the construction activity. For construction activities that are located adjacent to a 303(d) listed water body, an Extraordinary Resource Water (ERW), an Ecologically Sensitive Water body (ESW), or a Natural and Scenic Waterway (NSW), operators may be required to maintain a 50 foot buffer zone.[26]

BMP Selection Process

There is no information available on AR DEQ's website regarding the process used to develop BMP recommendations/requirements.

Application Process

AR DEQ's construction stormwater permit does not contain a list of recommended stormwater BMPs. AR DEQ directs permit applicants to download a U.S. EPA manual with guidance on preparing SWPPPs.[27]

Evaluating BMP Effectiveness at Permitted Sites

There is no information available on AR DEQ's website with regards to evaluating the effectiveness of stormwater BMPs.

California*

Specific BMP Recommendations

The California State Water Resources Control Board's (CSWRCB) general permit for stormwater discharges associated with construction activity does not recommend specific stormwater BMPs.[28] CSWRCB has developed a draft permit that does include BMP recommendations in the form of "good housekeeping" practices. The recommended "good housekeeping" practices vary according to one of three risk level assigned to each construction activity. Operators are required to determine their construction activity's risk level according to the methods outlined in the draft permit's appendices. Once the risk level is confirmed, operators are required to adhere to the good housekeeping and BMP recommendations that are specific to the appropriate risk level.[29] [30] [31]

BMP Selection Process

The Los Angeles Region Water Quality Control Board performed an assessment of structural and non-structural BMPs that are commonly implemented at large construction sites and summarized the results in a report that has been published on the CSWRCB's website. The report recommends specific stormwater BMPs and includes basic installation and maintenance recommendations for optimizing the performance and effectiveness of these BMPs. The recommended erosion control BMPs include: scheduling, preservation of existing vegetation, and slope stabilization. The scheduling BMP involves scheduling construction activities in an effort to minimize the size of the construction site's footprint at any given point in time. The recommended sediment control BMPs include: sediment basins, fiber rolls, and silt fences. The report also provides recommendations for tracking control BMPs, spill prevention and control measures, concrete waste management, etc.[32]

Application Process

CSWRCB encourages permit applicants to use the California Stormwater Quality Association's "Stormwater Best Management Practice Handbook" which provides detailed guidance for selecting and implementing stormwater BMPs.[33]

Evaluating BMP Effectiveness at Permitted Sites

The Los Angeles Region Water Quality Control Board published a report on the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites

There is no information available on CSWRCB's website with regards to whether the agency inspects construction activities that are not regulated under the stormwater permitting program.

City of San Diego, California

Specific BMP Recommendations

The City of San Diego has developed specific stormwater BMP requirements that vary according to many factors, including the type of construction activity, the number of acres disturbed, etc.
Applicants are required to complete and submit a "stormwater BMP requirements applicability checklist" with their permit applications.[34] The results of the checklist determine each project's priority designation, which will help determine any additional permittee BMP requirements. High priority construction sites are required to install low impact development (LID) BMPs, source control BMPs, and treatment control BMPs.[35] Additional BMPs are dependent on the construction site's "project development project category" designation. Project categories include: restaurant, commercial development greater than 1 acre, parking lot, etc. Many projects will have more than one project category designation, and will be required to implement each corresponding set of BMPs. For example, a commercial project that involves the building of a parking lot and the disturbance of 1 or more acres will be required to implement two sets of BMPs.

BMP Selection Process

There is no information available on City of San Diego's website regarding the methods used to select stormwater BMPs.

Application Process
The required stormwater BMPs are not specified in the construction stormwater permit, but applicants may download a stormwater BMP manual from the City of San Diego's Stormwater SWPPP website that provides detailed information about stormwater BMP requirements and provides guidance for selecting stormwater BMPs.[36]

The City of San Diego provides applicants with access to an interactive map that allows users to determine the location of 303(d) listed waterbodies. The map also specifies the pollutants that are causing impairment of 303(d) listed waterbodies. The City of San Diego also provides a BMP Selection Process matrix that lists the pollutant-specific removal efficiencies for each BMP.

Evaluating BMP Effectiveness at Permitted Sites
The City of San Diego assesses the "adequacy" of the stormwater BMPs implemented at construction activities according to whether the BMPs demonstrates compliance with the City's standards. The following is a list of performance standards that apply to construction BMPs:
Using pre-construction conditions as a standard, there must be no measurable increase in pollutant levels in stormwater runoff.
There must be no slope erosion.
The velocity of stormwater discharges must not exceed preconstruction velocities.
The natural hydrology of the site and riparian buffers must be preserved to the greatest extent possible.[37]

Evaluating BMP Effectiveness at Non-Permitted Sites
There is no information available on City of San Diego's website in regards to whether the city inspects construction activities that are not regulated on the stormwater permitting program.

Colorado*

Specific BMP Recommendations
The Colorado Department of Public Health and Environment (CDPHE) has not developed specific stormwater BMP recommendations or requirements for the purpose of managing stormwater discharges associated with construction activities.[38] CDPHE encourages applicants to select and install BMPs that are designed for the purpose of "source control." Planting vegetation and stabilizing exposed soil, thus preventing erosion, is more cost effective then treating sediment-laden stormwater which may be achieved by sediment settling basins.[39]

BMP Selection Process
The CDPHE does not require the installation of specific stormwater BMPs, but it does provide guidance that applicants must follow when selecting storm water and erosion control BMPs. Applicants are required to identify potential pollutant sources that will likely exist at their proposed construction sites and identify any pollutants that may be generated by these activities/sources. To assist applicants in their assessment of potential pollutant sources, the stormwater permit provides a long list of common pollutant sources. Applicants must then select BMPs that are designed to effectively remove these pollutants. The SWPPP must identify each practice that is likely to generate pollutants and list BMPs that will be installed to control these specific pollutants.[40]

Application Process

CDPHE's construction stormwater permit does not contain a list of recommended stormwater BMPs. The permit application does include a 19 page appendix with guidance for preparing a "stormwater management plan." The appendix includes links to stormwater BMP design manuals and provides information about training opportunities for BMP inspectors.[41] In addition, CDPHE refers permit applicants to a stormwater BMP manual compiled by the Urban Flood Control and Draining District, which is headquartered in Denver, Colorado. The manual contains BMP design criteria and guidance for selecting stormwater BMPs, and is "highly respected across the country."[42]

Evaluating BMP Effectiveness at Permitted Sites

CDPHE recommends that applicants refer to the "Analysis of Treatment System Performance" report available on the International Storm Water BMPs Database Program website.[43] The report is released annually by a consortium of consulting firms that have partnered with the American Society of Civil Engineers and the U.S. EPA, among others, which analyzes the effectiveness of stormwater BMPs. Monitoring data from all over the globe is submitted to the International Stormwater BMP database, which is utilized to assess the performance of the major categories of stormwater BMPs. The BMP categories include detention basin, biofilter, media filter, wetland basin, etc. The report provides comparative BMP performance results for major pollutants, including TSS, total Phosphorus, total Nitrogen, total Kjeldahl Nitrogen (TKN), and total Nitrate as Nitrogen, Lead, and Zinc.[44]

Evaluating BMP Effectiveness at Non-Permitted Sites

There is no information available on CDPHE's website in regards to whether the agency inspects construction activities that are not regulated under the stormwater permitting program.

<u>Connecticut</u>

Specific BMP Recommendations

The CT DEP requires operators to install specific stormwater BMP for the purpose of controlling stormwater discharges associated with construction activities.[45] CT DEP recommends specific stabilization practices including: silt fences, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and preservation of mature vegetation. CT DEP recommends structural practices including drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, and outlet protection.[46]

In addition to these BMP recommendations, CT DEP has developed erosion and sedimentation control minimum requirements. These requirements differ slightly depending on the number of acres disturbed. Large construction activities that disturb more than five acres are required to install sediment settling ponds. The sediment basins must have a storage volume of 134 cubic yards per acre drained. Small construction activities that disturb between 2 and 5 acres are required to install sediment swales, sediment mini-basins, or analogous sedimentation control BMPs. The sedimentation control BMPs must have a storage volume of 134 cubic yards per acre drained.[47,48]

Operators are required to install post-construction stormwater BMPs that are designed to remove suspended solids and oil and grease. CT DEP has developed a performance standard for post-construction stormwater BMPs that requires the removal of 80 percent of TSS from stormwater discharges. CT DEP recommends post-construction stormwater BMPs and control measures, including

stormwater detention structures, vegetated swales, vegetated buffers, sediment removal chambers, and "sequential systems (which combine several practices)."[49]

BMP Selection Process

CT DEP does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of proposed stormwater BMPs.[50] CT DEP has developed a stormwater BMP Manual, the "2004 Connecticut Stormwater Quality Manual" that provides detailed technical information about stormwater BMPs. The manual includes a chapter describing the selection criteria that SWPPP designers should consider when evaluating stormwater BMPs. The manual enables SWPPP designers to evaluate the effectiveness of stormwater BMPs by comparing the pollutant removal efficiencies for common stormwater BMPs. The manual also provides estimates of each stormwater BMP's run-off volume reduction effectiveness, stream protection effectiveness, and peak flow control effectiveness.[51] In addition, the manual evaluates stormwater BMPs in terms of: land use selection criteria, physical/site feasibility factors, downstream resource selection criteria, maintenance criteria, and winter and cold weather selection criteria. The information presented in the BMP manual enables the SWPPP designer to select the stormwater BMPs that are best suited to the unique physical conditions that exist at the proposed construction site.[52]

Application Process

CT DEP's NPDES construction stormwater general permit contains a list of both recommended and required stormwater BMPs. Operators may also refer to a stormwater BMP design manual that contains detailed information about both recommend and required stormwater BMPs.[53] The stormwater BMP Manual is available on CT DEP's website.

CT DEP has not developed an interactive electronic map tool that permit applicants can use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites

CT DEP relied on agency studies, industry research, product specifications, and site inspections to evaluate the effectiveness of the recommended stormwater BMPs.[54]

Evaluating BMP Effectiveness at Non-Permitted Sites

CT DEP does not inspect construction activities that are not permitted under a stormwater permitting program.

<u>Florida</u>

Specific BMP Recommendations:

The Florida Department of Environmental Protection (FL DEP) has transferred permitting authority to four of the five regional Water Management Districts (WMDs). In addition to following the requirements specified in FL DEP's construction stormwater permit, operators must adhere to any special requirements developed by the WMDs. Each water management district has developed its own BMP design manual that outlines the storm water BMPs and controls measures considered most effective and appropriate given the unique physical conditions (i.e., geographic and hydrologic) of each WMD.

The agency's minimum requirements pertaining to sediment basins and discharge outlets are nearly identical to the requirements outlined in the U.S. EPA's general stormwater permit. In addition to these specific BMP requirements, the construction stormwater permit contains a list of stormwater BMPs that operators can implement on a voluntary basis.[55]

Application Process

According to the survey respondent, FL DEP's construction stormwater permit recommends specific stormwater BMPs that operators may implement on a voluntary basis. In addition, operators may also utilize the agency's stormwater BMP manual, "Erosion and Sedimentation Control Designer and Reviewer Manual," which provides guidance for selecting stormwater BMPs. The manual also contains detailed information including design specifications for dozens of stormwater BMPs.[56] Furthermore, the agency has developed an interactive electronic map tool that permit applicants can use to locate wetlands and outstanding resource waters (ORWs) or to determine whether a particular section of river or lake is on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites

There is no information available on FL DEP's website regarding the methods used to evaluate the performance and effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites

FL DEP does not inspect construction activities that are not regulated under the agency's stormwater permitting program.

Indiana

Specific BMP Recommendations

The general NPDES permit authorizing stormwater discharges associated with construction activities does not recommend specific BMPs, but it does recommend certain performance objectives. BMPs must be implemented to reduce sediment run-off and to minimize the discharge of construction debris, garbage, wastewater, and concrete truck washout to surface waters.[57]

BMP Selection Process

According to the survey respondent, IDEM does not rely on models or other assessment tools to evaluate the effectiveness of stormwater BMPs.

Application Process

IDEM's construction stormwater permit does not contain a list of stormwater BMPs, although permit applicants may utilize the agency's stormwater BMP manual, "Indiana Storm Water Quality Manual." The manual contains guidance for developing a SWPPP, as well as technical information pertaining to erosion and sedimentation control BMPs, NPS BMPs, and post-construction BMPs.[58] The agency has also provided a link to the Illinois Natural Resources Conservation Service's "Illinois Urban Manual."[59] IDEM has not developed an interactive electronic map tool that permit applicants can use to locate bodies of water on the state's 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites
There is no information available regarding the methods IDEM utilizes to evaluate the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites
IDEM does not inspect construction activities that are not regulated under the agency's construction stormwater permitting program.

Iowa
Specific BMP Recommendations
IA DNR's construction stormwater permit does contain recommended stabilization practices, structural practices, and stormwater management practices. The requirements that pertain to sediment basins are nearly identical to the requirements specified in the U.S. EPA's construction stormwater permit. Recommended stormwater management practices include stormwater detention structures, stormwater retention structures, and flow attenuation structures. The permit also specifies a performance standard for stormwater management structures that operators are encouraged to uphold, although the standard is not enforced. The performance standard sets a TSS removal efficiency of 80% for flows that exceeds predevelopment levels.[60]

BMP Selection Process
There is no information available regarding the methods IA DNR uses to evaluate the effectiveness of stormwater BMPs.

Application Process
IA DNR's construction stormwater permit contains a list of stormwater BMPs that operators may choose to install on a voluntary basis. In addition, permit applicants have access to IA DNR's "Iowa Construction Site Erosion Control Manual," which contains detailed information about recommended erosion control measures and stormwater BMPs that operators can utilize to fulfill regulatory requirements.[61]

Evaluating BMP Effectiveness at Permitted Sites
IA DNR does conduct inspections of construction activities to evaluate stormwater BMP performance and permit compliance. Construction activities that discharge to MS4s may be subject to inspections by IA DNR as well as authorized representatives from the MS4.[62]

Evaluating BMP Effectiveness at Non-Permitted Sites
IA DNR does not inspect or monitor construction activities that are not regulated under the agencies construction stormwater permitting program.

Illinois
Specific BMP Recommendations
The Illinois Environmental Protection Agency (IL EPA) recommends specific stabilization practices and structural practices for the purpose of erosion control. Some of the recommended stabilization practices listed in the agency's construction stormwater permit include temporary seeding, permanent seeding,

mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation. Additionally, the agency lists recommended structural practices including sediment traps, check dams, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and sediment basins.[63]

BMP Selection Process
There is no information available regarding the methods IL EPA utilizes to determine which BMPs to recommend.

Application Process
IL EPA's construction stormwater general permit contains lists of stormwater BMPs that operators may choose to install on a voluntary basis. In addition, operators may refer to the IL EPA's "Illinois Urban Manual," which provides guidance for choosing appropriate stormwater BMPs and developing effective SWPPPs.[64]

Evaluating BMP Effectiveness at Permitted Sites
There is no information available regarding the methods IL EPA utilizes to evaluate the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites
There is no information available to determine whether IL EPA evaluates the effectiveness of stormwater BMPs installed at construction activities that are not permitted under the agency's construction stormwater permitting program.

Kansas
Specific BMP Recommendations
For construction activities that disturb 10 or more acres, operators must install sedimentation basins with a minimum of 3,600 cubic feet of storage capacity per acre drained. KDHE's construction stormwater permit does not specify any additional stormwater BMP requirements or recommendations. The permit does list stormwater BMPs that operators may choose to install on a voluntary basis, including possible structural BMPs and non-structural BMPs.[65] KDHE does not, however, endorse or recommend specific stormwater BMPS.

BMP Selection Process
KDHE does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of stormwater BMPs.

Application Process
KDHE's NPDES construction stormwater general permit contains lists of stormwater BMPs that operators may choose to install. KDHE encourages permit applicants to refer to a stormwater BMP manual developed by the U.S. EPA which is available for download on KDHE's website. The manual provides guidance for selecting and installing stormwater BMPs.[66] KDHE has not developed an interactive electronic map tool that permit applicants can use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites
KDHE reviews the SWPPPs for each proposed construction activity before issuing an NPDES construction stormwater permit.

Evaluating BMP Effectiveness at Non-Permitted Sites
KDHE does not assess the effectiveness of stormwater BMPs installed at construction activities that are not permitted under the NPDES construction stormwater permit program.

Louisiana

Specific BMP Recommendations
The Louisiana Department of Environmental Quality (LA DEQ) has not developed specific stormwater BMP recommendations or requirements for the purpose of managing stormwater discharges associated with construction activities.[67] The construction stormwater general permit does contain a list of possible erosion and sedimentation controls that operators may utilize as part of their SWPPPs. The list of practices is similar to the list of erosion and stabilization practices specified in the U.S. EPA's "NPDES General Permit for Stormwater Discharges for Construction Activities."[68]

BMP Selection Process
LA DEQ does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of stormwater BMPs.[69]

Application Process
LA DEQ's stormwater permit application does not contain a list of stormwater BMPs, and there is no reference or link to a stormwater BMP manual on LA DEQ's Louisiana Pollutant Discharge Elimination System Permit website.

LA DEQ has not developed an interactive electronic map that permit applicants can use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.[70]

Evaluating BMP Effectiveness at Permitted Sites
The LA DEQ performs site inspections in an effort to evaluate the condition and effectiveness of stormwater BMPs.[71]

Evaluating BMP Effectiveness at Non-Permitted Sites
The LA DEQ performs site inspections at construction activities that are not permitted under the construction stormwater permitting program, and these site inspections are performed in order to evaluate the effectiveness of stormwater BMPs.[72]

Massachusetts

Specific BMP Recommendations
MA DEP does not have NPDES primacy, and the U.S. EPA issues the "NPDES general permit for stormwater discharges from construction activities." The general permit requires the installation of

sediment basins and additional stormwater BMPs for the purpose of "erosive velocity control, post-construction management, erosion control and stabilization, etc."[73] The agency also recommends that operators install stormwater BMPs included in the "Massachusetts Stormwater Handbook," although the installation of these BMPs is voluntary.[74]

For construction activities that disturb 10 or more acres, operators must install sedimentation basins capable of storing the run-off produced by a 2-year, 24-hour storm. If the installation of a temporary sediment basin or analogous BMP is not feasible, then operators must install smaller sediment basins or sediment traps. In addition to sediment traps, operators must install silt fences, vegetative buffer strips, or analogous sediment control BMPs on all down slope boundaries and at side slope boundaries where appropriate.[75]

For construction activities that disturb less than 10 acres, operators must at a minimum, install silt fences, vegetative buffer strips, or analogous sediment control BMPs on all down slope boundaries and on side slope boundaries where appropriate. As an alternative, operators may choose to install a sediment basin capable of storing the runoff generated by a 2-year, 24-hour storm event.[76] Additional stormwater and erosion and sedimentation control BMPs are specified in the permit.[77]

BMP Selection Process

There is no information available regarding the process used to select the stormwater BMPs specified in the construction stormwater permit.

Application Process

Permit applicants may download the "Massachusetts Stormwater Handbook" which includes a chapter on structural stormwater BMPs. The manual profiles many different stormwater BMPs, and each profile includes information about advantages/disadvantages, design specifications, site constraints, maintenance procedures, applicability, etc. When possible, removal efficiencies for appropriate pollutants are also included in the profiles of each stormwater BMP.[78]

The MA DEP maintains an interactive map that allows permit applicants and other public users to determine the locations of 303(d) listed waterbodies, wetlands, and outstanding resource waters.

Evaluating BMP Effectiveness at Permitted Sites

There is no information available regarding the process used to assess the effectiveness of stormwater BMPs specified in the construction stormwater permit.

Michigan

Specific BMP Recommendations

MI DEQ's construction stormwater permit does not require the installation of specific stormwater BMPs. MI DEQ has developed three different manuals that contain detailed information about recommended stormwater BMPs including the "BMP Manual," the "Construction Stormwater Manual," and the "Soil Erosion and Sedimentation Control Manual."[79]

BMP Selection Process

MI DEQ does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of stormwater BMPs.

Application Process

MI DEQ's stormwater permit application does not contain a list of stormwater BMPs, although permittees may refer to one or more of the agency's aforementioned stormwater BMP manuals. The manuals contain technical information about stormwater BMPs and erosion and sedimentation control BMPs.

MI DEQ has not developed an interactive electronic map that permit applicants could use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the State of Michigan's 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites

MI DEQ performs site inspections to ensure that stormwater BMPs are being maintained properly and are performing effectively. Inspectors will visually observe stormwater discharges at discharge outlets and observe the condition of receiving waterbodies. Inspectors will also evaluate the condition of stormwater BMPs to ensure proper installation and maintenance

Evaluating BMP Effectiveness at Non-Permitted Sites

MI DEQ will inspect non-permitted construction activities if the agency received complaints from the public.

Minnesota

Specific BMP Recommendations

The Minnesota Pollution Control Agency (MPCA) construction stormwater permit contains a set of minimum requirements that apply to construction activities that disturb more than 10 acres, including the requirement that construction activities of this scale install sediment basins. The requirements pertaining to sediment basins are nearly identical to those outlined in the U.S. EPA's general stormwater permit.[80]

Construction activities that are located within 1 mile of specially designated waterbodies may be required to install specific best management practices as dictated by MPCA. The specific BMPs that an operator may be required to install vary depending on the type of waterbody that the construction activity is discharging to. Special waterbodies include the Mississippi River, recreational rivers, trout streams, "scientific areas," and 303(d) listed impaired waterbodies.[81]

The following is a list of BMPs that may be required at construction activities that discharge stormwater to special or impaired waterbodies.[82]

1. Exposed soil must be covered and stabilized within seven days after work has been completed.
2. Post-Construction BMPs: Operators must install permanent stormwater management systems to treat 1 inch of runoff discharged from newly construction impervious surfaces. If possible, a minimum of 0.5 inches of runoff must be infiltrated.
3. A buffer zone separating the construction site from the special waterbody must be implemented.
4. Enhanced runoff controls: The permanent stormwater management system must be designed such that the pre and post-construction run-off volumes are the same for a 1 or 2 year 24-hour rainfall event.
5. Temperature controls for discharges to trout waters are required.

For construction activities that discharge stormwater to trout streams, MPCA provides operators with the option of installing one or more specific BMPs.[83]

1. Minimize the area of new impervious surfaces.
2. Minimize discharges from impervious surfaces by directing stormwater discharges to vegetated areas such as grass swales.
3. Use infiltration or evapotranspiration to divert stormwater discharges that are in excess of pre-project conditions away from trout streams.
4. When ponding is used as a stormwater BMP, operators must maximize shading and filtered bottom withdrawals. Vegetated swales should be installed at discharge outlets and the pond should be able to draw down in 24 hours or less.

Riparian buffers:
Riparian buffers are considered a BMP under MPCA's general construction stormwater permit, and construction activities that discharge stormwater to special water bodies may be required to maintain the riparian buffers lining streams, rivers, and lakes. According to the general permit, the depth of the riparian buffer must be maintained at a minimum of 100 feet. Riparian buffers retard the flow of stormwater runoff and promote infiltration, which reduces pollutant discharges to lakes and streams.[84]

BMP Selection Process

There is no information available regarding the process MPCA uses to select the stormwater BMPs specified in the agency's construction stormwater permit.

Application Process

As previously mentioned, MPCA construction stormwater permit contains a list of required stormwater BMPs that operators are required to install. In addition, MPCA directs permit applicants to an interactive web-based mapping system, available on the agency's website that allows users to identify all "special" and impaired waterbodies in the vicinity of their construction sites. The program allows users to retrieve information about the specific BMP requirements that correspond with each special waterbody. Permit applicants may also download one or more stormwater BMP manuals that MPCA has published on their website, including the "Minnesota Stormwater Manual.," and "Protection Water Quality in Urban Areas-A Manual."[85] [86]

Evaluating BMP Effectiveness at Permitted Sites

Operators are required to inspect erosion and sedimentation control BMPs to ensure that the controls are operating effectively. If a defective stormwater BMP is discovered, operators are required to replace or repair the control within 24 hours. BMP inspections are to be performed by permittees.[87]

MPCA also performs its own inspections of construction activities to evaluate the effectiveness of stormwater BMPS.

Evaluating BMP Effectiveness at Non-Permitted Sites

There is no information available in regards to whether MPCA inspects construction activities that are not regulated under the agency's construction stormwater permitting program.

Montana

Specific BMP Recommendations

MT DEQ has not developed Specific BMP Recommendations or requirements for the purpose of regulating stormwater discharges associated with construction activities.[88] MT DEQ's permit does however list stormwater BMPs that permit applicants should consider when developing their SWPPPs. The permit contains a list of possible stabilization measures, which includes: temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer/filter strips, and grassed waterways. The permit also contains a list of possible structural measures for the purpose of diverting stormwater away from exposed soil. Some of the structural measures include: straw bale dikes, sediment control (silt) fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, rock outlet protection, and drain inlet and outlet protection. The stormwater permit also contains a list of possible post-construction stormwater BMPs that should be considered, including stormwater detention structures and stormwater retention structures.[89]

BMP Selection Process

MT DEQ does not use models or other assessment tools to determine which stormwater BMPs should be recommended or to evaluate the effectiveness of BMPs.

Application Process

MT DEQ has not developed stormwater BMP requirements, although the agency's stormwater permit does contain lists of BMPs that applicants are encouraged to install on a voluntary basis. MT DEQ does encourage permit applicants to refer to the U.S. EPA's National Menu of Stormwater Best Management Practices website, which provides detailed technical information about recommended BMPs.[90]

MT DEQ has not developed an interactive electronic map that permit applicants can use to locate wetlands or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites

MT DEQ performs site inspections to ensure that stormwater BMPs have been installed correctly and are being maintained properly. MT DEQ will only evaluate the effectiveness of a stormwater BMP as part of an investigation following a BMP failure; MT DEQ inspectors do not normally evaluate BMP

effectiveness during routine site inspections. Furthermore, MT DEQ does not evaluate the "adequacy" of stormwater BMPs during the review of SWPPPs.[91]

Evaluating BMP Effectiveness at Non-Permitted Sites

MT DEQ does not inspect construction activities that are not permitted under the stormwater permitting program.[92]

New York

Specific BMP Recommendations

The New York Department of Environmental Conservation (NYSDEC) requires operators to install erosion controls and stormwater BMPs that comply with design standards outlined in the agency's "New York Standards and Specifications for Erosion and Sedimentation Control."[93] In addition, construction activities located within three specific watersheds are required to implement erosion and sedimentation controls as well as stormwater BMPs that comply with "enhanced phosphorus removal standards," as outlined in the New York Stormwater Management Design Manual.[94] All construction activities located within the boundaries of the New York City Watershed are required to comply with this requirement.[95]

BMP Selection Process

The "New York Stormwater Management Design Manual" provides a list of "acceptable stormwater management practices (SMPs) that applicants are encouraged to implement at their constructions activities. The SMPs were selected because they meet certain performance standards and design criteria. All SWPs characterized in the manual meet the following performance standards and criteria:[96]

1. Can capture and treat the full water quality volume.
2. Exhibit an 80% TSS removal efficiency and a 40% total phosphorus removal efficiency.
3. Demonstrate "acceptable longevity in the field."
4. Include a built-in pretreatment mechanism.

Application Process

Although NYSDEC's construction stormwater permit does not contain a list of recommended stormwater BMPs, permit applicants may download the "New York Stormwater Management Design Manual," which contains detailed information about recommended erosion controls and stormwater BMPs. The manual includes a selection tool that SWPPP designers can utilize when selecting appropriate stormwater BMPs. The selection tool consists of five matrices, and designers are instructed to move from one selection matrix to the next. Each matrix is devoted to a different selection criterion. The land-use selection matrix allows SWPPP designers to choose stormwater BMPs based on whether they are more appropriate for residential construction activities or "ultra urban" construction activities. The stormwater management capability matrix allows designers to evaluate stormwater BMPs based on pollutant removal efficiency and "channel protection." The five selection matrices include land use, physical feasibility, watershed/regional factors, stormwater management capability, and community and environmental factors.[97]

Evaluating BMP Effectiveness at Permitted Sites

Operators are required to perform regular inspections to ensure that stormwater BMPs are performing effectively.[98] This is required of all permitted construction activities, including those permitted activities

located within the New York City Watershed east of the Hudson River that disturb between 5000 square feet and 1 acre.

Evaluating BMP Effectiveness at Non-Permitted Sites

There is no information available with regard to whether NYSDEC requires inspections at construction activities that are not permitted under the agency's construction stormwater permitting program.

North Carolina:

Specific BMP Recommendations

If NC DENR determines that a construction activity is likely to generate stormwater discharges that may lead to nonattainment of water quality standards, NC DENR may require the operator to apply for 401 Water Quality Certification. Construction activities that are regulated under the 401 Quality Certification program may be subject to specific stormwater BMP requirements.[99]

NC DENR's construction stormwater permit does not require the installation of specific stormwater BMPs, although applicants are encouraged to implement BMPs presented in the agency's stormwater BMP manual that is available on the North Carolina Division of Water Quality's website.[100] The stormwater BMP Manual can be used to determine which stormwater regulatory requirements a construction activity may be subject to under the agency's stormwater permitting program, as regulatory requirements differ depending on the watershed and proximity to outstanding resource waters (ORW) and saltwater bodies.[101] In addition, the stormwater BMP Manual provides detailed information about stormwater BMPs, including pollutant removal efficiencies, design specifications, maintenance requirements, etc.[102]

Construction activities that are located within the Neuse River Basin must adhere to the requirements of the Neuse River Basin Nutrient Sensitive Waters Management Strategy. The primary objective of the Neuse stormwater program is to reduce the nitrogen load of stormwater discharges, and operators are required to install nitrogen-reducing BMPs or purchase nitrogen credits from the Ecosystem Enhancement Program (EEP) in order to achieve a "computed post-development nitrogen load of 3.6 lb/ac/yr."[103]

Construction activities that discharge stormwater to a freshwater outstanding resource water (ORW) are subject to a different set of regulatory requirements specified under the Outstanding Resource Waters section of the North Carolina Administrate Code.[104] According to the rule, operators must choose to follow a low density development scheme or a high density development scheme. The low density option requires that stormwater runoff be transported by "vegetated conveyances" and the conveyance system must not include a "discrete stormwater collection system."[105] Furthermore, operators that choose the low density option must preserve at least a 30 foot wide vegetative buffer between the construction activity and the outstanding resource water (ORW). The high density option requires the installation of detention ponds or an alternative stormwater control BMP. Furthermore, the stormwater collection systems must be designed to control runoff generated by a one inch rainfall event.[106] Stormwater BMP requirements do not vary according to the size of the construction activity.

BMP Selection Process
NC DENR does not use models or other assessment tools to determine which stormwater BMPs to recommend or to evaluate the effectiveness of stormwater BMPs.

Application Process
NC DENR directs permit applicants to an "interactive web-based mapping system" that allows users to determine whether their construction activities are subject to the terms of the post-construction permitting program and/or other "storm water permitting requirements."[107, 108]

Recommended stormwater BMPs are not listed in the agency's construction stormwater permit, but BMP recommendations and pertinent BMP specifications can be found in a stormwater BMP Manual that is available on the North Carolina Division of Water Quality's website.[109]

Evaluating BMP Effectiveness at Permitted Sites
NC DENR relies upon industry research and its own agency studies to evaluate BMP effectiveness.[110]

Evaluating BMP Effectiveness at Non-Permitted Sites
NC DENR does not inspect construction activities that are not permitted under its stormwater permitting programs, and the agency does not determine the effectiveness of stormwater BMPs at non-permitted construction activities.[111]

North Dakota

Specific BMP Recommendations
ND DoH's construction stormwater permit contains a list of erosion and sedimentation control practices that operators are required to install when appropriate. The requirements pertaining to sediment basins and discharge outlets are nearly identical to the requirements outlined in the U.S. EPA's general stormwater permit. ND DoH has included more definitive requirements that pertain to vegetative buffers. For every 125 feet of disturbed land draining to a vegetative buffer, the buffer must have a minimum width of 25 feet. The buffer's slope must not exceed 5%, while the area of disturbance must not have a slope in excess of 6%. The buffer must be planted with grassy vegetation that is 3 to 12 inches tall and no more than 10% of the buffer may consist of woody vegetation.[112]

BMP Selection Process
ND DoH does not use models or other assessment tools to determine which BMPs should be recommended or to evaluate the effectiveness of stormwater BMPs.

Application Process
Recommended stormwater BMPs are listed in the agency's construction stormwater permit. Operators may also refer to ND DoH's stormwater BMP manual, "A Guide to Temporary Erosion Control Measures for Contractors, Designers, and Inspectors," which provides guidance for selecting stormwater BMPs. The manual also contains detailed information including design specifications for dozens of stormwater BMPs.[113]

Evaluating BMP Effectiveness at Permitted Sites
ND DoH relies on site inspections to evaluate the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites
According to the survey respondent, ND DoH does monitor the condition and effectiveness of stormwater BMPs at construction activities that are not regulated under the agency's stormwater permitting program. The agency monitors these non-permitted activities through "wet weather observations."[114]

Ohio

Specific BMP Recommendations
OH EPA has developed three different construction stormwater permits--a general construction stormwater permit, and two alternative construction stormwater permits that were specifically developed for construction activities located within the Olentangy and Big Darby Watersheds.[115]

OH EPA's construction stormwater general permit requires operators to install sediment settling basins if certain conditions are met. A sediment settling basin may be required if the proposed construction activity is likely to disturb 10 or more acres or if the volume of stormwater run-off from the drained area exceeds the "design capacity of silt fences or other sediment barriers." If operators are required to install sediment settling basins, the sediment basin's dewatering zone must have a storage volume of 1800 cubic feet per acre drained. In addition, the dewatering zone must have a minimum drain time of 48 hours.[116]

According to the alternative stormwater permit developed for the Olentangy watershed, sediment settling ponds are only required if the proposed construction activity is likely to disturb 10 or more acres or if the volume of stormwater run-off exceeds the "design capacity of silt fences or other sediment barriers." Sediment settling basins must have a storage volume of 134 cubic yards per acre of drained. In addition, OH EPA has developed a performance standard for sediment settling basins installed in the Olentangy watershed. The level of TSS in the discharge must not exceed 45 mg/l for a 24 hour, 0.75-inch rainfall event. The alternative stormwater permit also requires operators to install silt fences or analogous erosion and sediment control BMPs at construction activities that disturb less than 5 acres. The silt fences must be installed on "level contour down slopes."[117]

Both the general permit and the alternative permits include a list of recommended post-construction stormwater BMPs. Operators that choose to install one or more of these recommended stormwater BMPs are encouraged to adhere to the design standards that are specified in the permit. OH EPA specifies a target "drain time" for each recommended post-construction BMP, and this measure serves as a design standard.[118, 119] Operators are allowed to install alternative stormwater BMPs, but OH EPA will only approve alternative BMPs if the operator can demonstrate that the alternative BMP can achieve a minimum TSS removal efficiency of 80%.[120]

The alternative stormwater permit developed for the Olentangy watershed also specifies Riparian Setback Requirements. These requirements only apply when a construction activity discharges stormwater to a perennial or intermittent stream.[121] The stormwater general permit has a similar requirement that applies to construction activities that discharge to surface waters. According to the general permit, the recommended setback distance between the high water mark and the construction activity's boundary is

25 feet. Operators are encouraged to preserve the riparian habitat within this protected area, thus allowing the undisturbed area to serve as a buffer.[122]

BMP Selection Process
OH EPA works with the Ohio Department of Natural Resources and relies on various stormwater BMP design manuals when evaluating stormwater BMPs and deciding which BMPs to recommend. OH EPA does not utilize models or other assessment tools when evaluating the effectiveness of proposed stormwater BMPs.

Application Process
OH EPA's construction stormwater general permits contain lists of required stormwater BMPs. Permit applicants may also refer to the "Rainwater and Land Development Manual," which provides guidance for selecting stormwater BMPs.

Evaluating BMP Effectiveness at Permitted Sites
OH EPA relies upon industry research and its own site inspections to evaluate the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites
OH EPA does not inspect construction activities that are not permitted under the NPDES stormwater permitting program.

<u>Oregon</u>
Specific BMP Recommendations
OR DEQ recommends specific stormwater BMPs which operators can implement on a voluntary basis. Stormwater BMP recommendations and requirements are the same for all types of construction activities, and the recommendations do not vary according to number of acres disturbed.

The construction stormwater permit recommends specific run-off controls, erosion prevention methods, and sediment controls. The recommended run-off controls include: slope drains, energy dissipaters, temporary diverse dikes, and grass-lined channels. The permit also recommends erosion prevention methods, including clearing and grading practices, and vegetative erosion control practices. In addition, the permit recommends specific sediment controls including peripheral erosion and sediment controls, and practices for reducing sediment tracking.[123]

If a construction activity discharges to an impaired water body with a Total Maximum Daily Load (TMDL) for sedimentation or turbidity, the construction operator two options.

First, the operator may monitor the stormwater discharge for turbidity and compare the turbidity to a benchmark value of 160 Nephelometric Turbidity Units (NTUs). If the level of turbidity in the stormwater discharge is greater than the benchmark value, the operator must evaluate the effectiveness of their erosion and sedimentation control plan (ESCP) and address any inadequacies. If the supplemental BMPs and other improvements fail to reduce turbidity, then the operator must install one or more approved stormwater BMPs.[124]

Second, the permittee may forego the monitoring and install one or more approved stormwater BMPs.[125] The approved stormwater BMPs include: compost berms, erosion control mats, and vegetative buffers. Operators may also choose to install trackifiers, which are used in combination with perimeter sediment control BMPs. Finally, operators may choose to treat stormwater discharges with electro-coagulation.[126]

BMP Selection Process
Operators are required to explain their reasoning for selecting the stormwater BMPs that are included in their SWPPP. OR DEQ does not use models to evaluate the effectiveness of stormwater BMPs.[127]

Application Process
The OR DEQ's NPDES construction stormwater general permit contains a list of recommended stormwater BMPs that operators are encouraged to implement at their construction activities.[128]

OR DEQ has developed specific stormwater BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies that are impaired due to sediment or turbidity. OR DEQ provides permit applicants with access to an electronic map that provides the location of 303(d) listed waterbodies that are impaired due to sediment or turbidity.[129]

Evaluating BMP Effectiveness at Permitted Sites
OR DEQ performs site inspections in order to evaluate the effectiveness of stormwater BMPs. OR DEQ also requires operators to inspect and evaluate the performance of erosion and sedimentation control BMPs. Operators are required to inspect stormwater discharges for sediment or turbidity, and if the qualitative assessments reveal significant amounts of sediment, additional erosion and sedimentation control BMPs must be installed and/or deficiencies must be addressed.[130]

Evaluating BMP Effectiveness at Non-Permitted Sites
OR DEQ does not inspect construction activities that are not permitted under the NPDES stormwater permitting program.

<u>South Carolina</u>
Specific BMP Recommendations
The South Carolina Department of Health and Environmental Control's (SC DHEC) minimum requirements pertaining to sediment basins and discharge outlets are nearly identical to the requirements outlined in the U.S. EPA's general stormwater permit. Besides these minimum controls, the permit does not contain a list of recommended stormwater BMPS.

SC DHEC has developed a BMP performance standard in the form of a removal efficiency goal. Construction activities that disturb 10 or more acres are required to install sediment basins that achieve removal efficiencies of 80% for TSS or peak settleable concentrations of 0.5 ml/L. Construction activities that disturb 5 or more acres are also encouraged to implement stormwater and erosion control BMPs that collectively achieve the same removal efficiency goal of 80% for TSS.[131]

SC DHEC requires permittees to identify pollutant sources associated with activities occurring off-site that supply the permitted construction activity with materials. This includes concrete plants and asphalt

production plants. The SWPPP must describe control measures and stormwater BMPs that will be implemented to manage stormwater discharges at these additional sites.

BMP Selection Process

SC DHEC relies at least in part, on a report published in 1993 by researchers at Clemson University that evaluates the effectiveness of different categories of nonpoint source best management practices (BMPs). In some cases, the researchers assessed the effectiveness of stormwater and erosion control BMPs by measuring pollutant removal efficiencies. The researchers also provided a detailed discussion of the advantages and disadvantages of each BMP category.

Application Process

SC DHEC's construction stormwater permit does not contain a list of recommended stormwater BMPs, although permit applicants are encouraged to use the agency's "South Carolina DHEC Storm Water Management BMP Handbook," which provides detailed information about erosion prevention BMPs, sedimentation control BMPs, and post-construction stormwater controls. Furthermore, applicants are encouraged to refer to the agency's list of 303(d) listed waterbodies in order to determine the status of waterbodies that their construction activity might discharge to.

Evaluating BMP Effectiveness at Permitted Sites

Operators that are responsible for construction activities that disturb 10 or more acres are required to prepare monthly Erosion Prevention and Sediment Control reports.[132] Operators are required to identify any erosion control BMPs that aren't functioning properly and describe adverse impacts that may have been suffered as a result of deficient BMPs. The reports must be submitted to the SC DHEC. For construction activities that disturb less than 10 acres, operators are still required to prepare monthly reports that must be made available to SC DHEC upon request.[133]

Evaluating BMP Effectiveness at Non-Permitted Sites

There is no information available to determine whether SC DHEC evaluates the effectiveness of stormwater BMPs installed at construction activities that are not permitted under the agency's construction stormwater permitting program.

Texas

Specific BMP Recommendations

TCEQ recommends BMPs for the purpose of regulating stormwater discharges associated with construction activities.[134] The stormwater BMP recommendations are the same for all types of construction activities, and the recommendations do not vary according to number of acres disturbed.[135] TCEQ has developed an erosion control BMP manual that provides detailed information about recommended erosion control BMPs including information about installation.[136] TCEQ also encourages permit applicants to refer to the stormwater BMP recommendations and technical information that is available through the International Stormwater BMP Database.[137] Operators that are planning to develop land on the "recharge, transition, or contributing zones of the Edwards Aquifer" are encouraged to use a technical guidance manual that was developed by TCEQ. The manual provides detailed technical information about appropriate stormwater BMPs.[138]

BMP Selection Process
TCEQ does not use models or other assessment tools to evaluate stormwater BMPs or to determine which BMPs should be recommended.

Application Process
Recommended stormwater BMPs are not listed in the NPDES construction stormwater permit, but permit applicants may download an erosion control BMP manual developed by TCEQ or refer to the International Stormwater BMP Database, both of which provide detailed technical information about recommended BMPs.

TCEQ has developed an interactive electronic map that permit applicants can use to locate impaired streams and rivers on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites
There is no information available regarding TCEQ's procedure for evaluating the effectiveness of stormwater BMPs.

Evaluating BMP Effectiveness at Non-Permitted Sites
TCEQ does not inspect construction activities that are not permitted under the construction stormwater permitting program.[139]

Utah
Specific BMP Recommendations
According to the survey respondent, UT DEQ has not developed specific BMP requirements for the purpose of controlling stormwater associated with construction activities.[140] UT DEQ's construction stormwater permit does contain a list of stabilization practices that includes the following BMPs: permanent seeding, mulching, geo-textiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation. Furthermore, for construction activities that disturb more than 10 acres, operators are strongly encouraged to install temporary sediment basins with 3,600 cubic feet of storage capacity per acre drained. For construction activities that disturb less than 10 acres, operators are encouraged to install at a minimum, silt fences, vegetative buffer strips, or analogous sedimentation control BMPs on all down slope boundaries.[141]

BMP Selection Process
UT DEQ does not use models or other assessment tools to determine which stormwater BMPs should be recommended or to evaluate the effectiveness of BMPs.[142]

Application Process
UT DEQ's website includes a link to the U.S. EPA's National Menu of Stormwater Best Management Practices website, which provides detailed technical information about recommended stormwater BMPs.[143] UT DEQ has not developed an interactive electronic map that permit applicants can use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.[144]

Evaluating BMP Effectiveness at Permitted Sites
UT DEQ relies on site inspections to assess whether stormwater BMPs are being maintained properly and are performing effectively.[145]

BMP Effectiveness: Non-permitted sites
UT DEQ does not inspect construction activities that are not permitted under the stormwater permitting program.[146]

Vermont
Specific BMP Recommendations
VT DEC has developed specific stormwater BMP requirements that operators are required to follow.[147] The BMP requirements do not vary according to the type of construction activity undertaken, although the requirements do vary according to the number of acres disturbed.[148] VT DEC requires permit applicants to complete a Risk Evaluation, which will determine their construction activities' risk category. Construction activities are either labeled "low risk" or "moderate risk," and there are a different set of permit requirements associated with each risk categorization.[149] Low risk construction activities are required to install the stormwater BMPs and erosion and sedimentation controls that are presented in the "Low Risk Site Handbook for Erosion Prevention and Sediment Control."[150] The manual contains simplified information about the BMPs, including installation and maintenance information. The manual also provides photographs of BMPs that have been properly installed and maintained and BMPs that have not been properly installed.

Moderate risk construction activities are required to follow the guidelines presented in "The Vermont Standards and Specification for Erosion Prevention and Sediment Control" manual. This manual provides standards and specifications for erosion prevention BMPs and sediment control BMPs.[151]

BMP Selection Process
VT DEC gathered information from the New York Department of Conservation's BMP manual when developing stormwater BMP requirements.[152] VT DEC does not utilize models or related assessment tools to evaluate the effectiveness of stormwater BMPs.

Application Process
The required stormwater BMPs are not included in the construction stormwater permit, but applicants may download stormwater BMP manuals from VT DEC's website that provide technical information that SWPPP designers and operators are required to follow when selecting and installing stormwater BMPs.[153, 154]

The VT DEC has developed an interactive electronic map that permit applicants can use to locate 303(d) listed streams and rivers and outstanding resource waters (ORW). The electronic map primarily shows the locations of 303(d) listed waterbodies that are impaired due to stormwater.[155]

Evaluating BMP Effectiveness at Permitted Sites
VT DEC relied on industry research to assess the effectiveness of individual stormwater BMPs and when determining BMP requirements.[156]

Evaluating BMP Effectiveness at Non-Permitted Sites

VT DEC does not inspect construction activities that are not permitted under a stormwater permitting program.[157]

Virginia

Specific BMP Recommendations

VA DCR does require operators to install specific erosion and sedimentation controls, but operators are encouraged to install stormwater BMPs specified in Part II of the Virginia Stormwater Management Regulations or the Virginia BMP Clearinghouse.[158] [159] Stormwater BMP recommendations and requirements are the same for all types of construction activities. In addition, BMP requirements do not vary according to the number of acres disturbed by the construction activity.[160]

Erosion and sedimentation controls must be designed according to the minimum standards outlined in "Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations." As a minimum, sediment traps must be installed when construction activities disturb less than 3 acres. The sediment traps must have the capacity to store 134 cubic yards of stormwater per acre drained. For construction activities that disturb 3 or more acres, operators are required to install sediment basins with the capacity to store 134 cubic yards per acre drained. Furthermore, the sediment basin must be designed to withstand and process the stormwater generated by a 25-year, 24 hour storm event. Additional minimum standards can be found in the "Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations."[161]

BMP Selection Process

To ensure attainment of water quality criteria, VA DCR requires operators to select and install stormwater BMPs that meet either the technology-based criteria or performance-based criteria specified in the Virginia Stormwater Management Regulations.[162] Operators that choose to abide by the performance-based criteria must demonstrate that the post-development stormwater runoff load is comparable to the pre-development load. In an effort to achieve this goal, operators must install stormwater BMPs that achieve the target pollutant removal efficiencies that are specified in Table 3-1. The stormwater permit provides a list of recommended stormwater BMPs, and for each BMP, VA DCR has specified a target phosphorus removal efficiency.[163] Operators that choose to abide by technology-based criteria must install stormwater BMPs that meet the same target pollutant removal efficiencies specified in Table 3-1.[164]

Table 3-1. Pollutant Removal Efficiencies from Virginia Stormwater Management General Permit No.: VAR10

Water Quality BMP*	Target Phosphorus Removal Efficiency	Percent Impervious Cover
Vegetated filter strip	10%	16-21%
Grassed Swale	15%	
Constructed wetlands	20%	22-37%
Extended detention (2 x WQ Volume)	35%	
Retention basin I (3 x WQ Volume)	40%	
Bioretention basin	50%	38-66%
Bioretention filter	50%	
Extended detention-enhanced	50%	
Retention basin II (4 x WQ Volume)	50%	
Infiltration (1 x WQ Volume)	50%	
Sand filter	65%	67-100%
Infiltration (2 x WQ Volume)	65%	
Retention basin III (4 x WQ Volume with aquatic bench)	65%	

BMP Selection Process

VA DCR does not use models or other assessment tools to evaluate stormwater BMPs or to determine which BMPs should be recommended.[165]

Application Process

VA DCR's construction stormwater permit does not contain a list of recommended stormwater BMPs, although operators are required to review BMP standards and recommendations outlined in the "Virginia Stormwater Management Regulation" and "Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations" documents."[166] [167] In addition, permit applicants are encouraged to refer to VA DCR's stormwater BMP manual that contains design standards and specifications for recommended stormwater BMPs.[168] The manual identifies criteria that operators and SWPPP designers should consider when selecting stormwater BMPs, including site feasibility. The manual provides guidance for assessing site feasibility by describing the appropriate physical conditions that must exist in order to install each recommended stormwater BMP. Some of the additional selection criteria include environmental impacts, watershed stormwater management requirements, pollutant removal efficiency, technology-based water quality criteria and performance-based water quality criteria.[169]

VA DCR is developing a website called the "Virginia Stormwater BMP Clearinghouse" that operators and SWPPP designers will be able to use to retrieve information about BMP design standards and specifications. The website will feature technical information about traditional stormwater BMPs, LID practices, ESD practices, and manufactured treatment devices (MTDs). Furthermore, VA DCR will use the website to publish the results of an agency sponsored research effort to "evaluate and certify the performance claims of manufactured/proprietary BMPs approved for use in Virginia."[170]

VA DCR has not developed an interactive electronic map that permit applicants can use to locate wetlands and/or outstanding resource waters or to determine whether a particular section of river is on the 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites

VA DCR primarily considers pollutant removal efficiencies when considering which stormwater BMPs to recommend. VA DCR also performs site inspections to evaluate stormwater BMP performance and effectiveness.[171] VA DCR is currently evaluating the "performance claims of manufactured BMPs" and will publish the results of its findings on the Virginia Stormwater BMP Clearinghouse website.[172]

Evaluating BMP Effectiveness at Non-Permitted Sites

VA DCR does not inspect construction activities that are not permitted under the NPDES stormwater permitting program.[173]

Washington

Specific BMP Recommendations

Although the construction stormwater permit does not list specific stormwater BMPs that contractors are required to implement, contractors are instructed to rely on WA DOE's "Stormwater Management Manual" when developing their SWPPPs.[174] The manual includes explicit instructions and guidelines for selecting stormwater BMPs and includes detailed information about recommended stormwater BMPs, including design specifications, maintenance requirements, and information about "conditions of use." The manual identifies pollutant-specific BMPs and source-specific BMPs.[175] According to the survey respondent, BMP requirements and recommendations do not vary according to the type of construction activity undertaken, but the requirements do vary according to the number of acres disturbed. Construction activities that disturb 3 acres or more are required to install sediment ponds, while activities that disturb less than 3 acres are required to install sediment traps or equivalent BMPs.

Pursuant to the construction stormwater permit, contractors are required to include strategies for addressing 12 "elements" in their SWPPPs.[176] Examples of these elements include: control flow rates, install sediment controls, stabilize soils, protect slopes, and protect drain inlets. The manual includes a list of recommended BMPs for each of these elements. The recommended BMPs for protecting slopes include: temporary and permanent seeding, surface roughening, grass lined channels, and interceptor dikes and swales. According to the survey respondent, BMP recommendations do not vary according to the type of construction activity being undertaken, although the recommendations do vary according to the number of acres.

BMP Selection Process

Contractors are encouraged to rely on the State of Washington's "Stormwater Management Manual," which includes explicit instructions and guidelines for selecting stormwater BMPs. Furthermore**,** WA DOE has developed benchmark monitoring values for turbidity, transparency, and pH, and these benchmarks will likely influence the BMP Selection Process. The benchmark monitoring value for turbidity is 25 NTUs, while the benchmark for transparency is 31 cm. The benchmark for pH is 8.5 standard units.[177]

Application Process
WA DOE maintains an interactive map that allows permit applicants and the general public to determine the locations of impaired streams and rivers on the state's 303(d) list.

Evaluating BMP Effectiveness at Permitted Sites
The WA DOE has assessed the effectiveness of stormwater BMPs through consideration of agency studies, industry research, product specifications, and site inspections.

Wisconsin
Specific BMP Recommendations
Operators are required to install BMPs that achieve a sediment removal efficiency of 80%. These controls must be maintained at this standard until the construction site has undergone final stabilization. In addition to this performance standard, operators are required to install stormwater BMPs according to technical standards published in a series of documents collectively referred to as the "Stormwater Management Technical Standards." The standards are published on the agency's website.[178]

Furthermore, operators are required to develop SWPPPs that address a list of requirements specified in Wisconsin Department of Natural Resources (WI DNR's) construction stormwater permit. The pollution prevention plan must include descriptions of sediment controls, interim and permanent stabilization practices, structural practices for diverting flow away from disturbed soils, structural practices for storing flows discharging from the construction sites, BMPs for managing overland flow across the construction site, BMPs for trapping sediment in channelized flow, BMPs for protecting down slope drainage inlets, BMPs for preventing the tracking of sediment onto paved surfaces, BMPs for minimizing sedimentation, BMPs for protecting separate storm drain inlet structures from sedimentation, BMPs for stabilizing drainage ways, and BMPs for permanent stabilization. Additional requirements are specified in the agency's construction stormwater permit.

BMP Selection Process
There is no information available regarding the methods WI DNR uses to select the recommended stormwater BMPs included in the agency's construction stormwater permit.

Application Process
WI DNR's construction stormwater permit contains a list of stormwater BMPs that operators may choose to implement on a voluntary basis. Once stormwater BMPs have been selected, operators must install them according to technical standards specified in the agency's "Stormwater Management Technical Standards" documents. Operators must review WI DNR's list of 303(d) listed waterbodies, which is published on the agencies website, to determine whether their construction activity discharges to an impaired water body. Construction activities that discharge to 303(d) listed waterbodies must design SWPPPs that will prevent the discharge of any pollutants for which the water body is impaired.

Evaluating BMP Effectiveness at Permitted Sites
There is no information available regarding the process WI DNR uses to determine which stormwater BMPs to recommend in its construction stormwater permit.

Evaluating BMP Effectiveness at Non-Permitted Sites
There is no information available in regards to whether WI DNR inspects non-permitted sites that are not regulated under the agency's construction stormwater permit.

3.2.3 Additional Permit Requirements

U.S. EPA Region 9

Outstanding Resource Waters
The Region 9 Office has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding water resources.

Wetlands
U.S. EPA Region 9 does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.[179]

Certification Requirements
EPA Region 9 does not require operators, BMP installers, and/or those responsible for inspecting BMPs to obtain certification. Inspections must be conducted by "qualified personnel." A qualified inspector must be knowledgeable in the principles of erosion and sediment control" and must be able to evaluate the condition and effectiveness of stormwater BMPs.[180]

Arkansas*

Outstanding Resource Waters
For construction activities that are located adjacent to a 303(d) listed water body, an ERW, an ESW, or a NSW, operators may be required to maintain a 50 foot buffer zone.[181]

Wetlands
It was unclear from the agency website whether AR DEQ has developed specific regulatory requirements for construction activities that discharge stormwater to wetlands.

Certification Requirements
AR DEQ does require "qualified inspectors" to perform inspections of the construction site to evaluate the effectiveness of erosion and sedimentation controls and stormwater BMPs.[182]

City of San Diego*

Outstanding Resource Waters
Construction activities that are likely to discharge to coastal lagoons, waterbodies in "Water Quality Sensitive Areas," or 303(d) listed waterbodies that are impaired due to sediment, are required to install special stormwater BMPs. Operators must install "higher performing erosion controls" such as bonded fiber matrices or anchored erosion control blankets on disturbed slopes. Operators must install and maintain vegetated buffers between the boundary of the construction activity and the sensitive water body. If stormwater discharges are directed to one or more inlet structures that convey the discharges to impaired waterbodies, then operators must also install two parallel silt fence barriers directly upstream of the inlet structure. There are additional special stormwater BMPs that operators are required to install if

their proposed construction activities are likely to discharge to impaired waterbodies, and these requirements are outlined in the Stormwater Standards Manual.[183]

If a proposed construction activity is classified as an "exceptional threat to water quality," additional "advanced treatment" BMPs may be required. Construction activities may be classified as "exceptional threats" if the activity is located within 200 feet of a 303(d) listed water body that is impaired due to sedimentation or turbidity. Additional criteria that may warrant an "exceptional threat" classification are outlined in the stormwater standards manual. In the event that a construction activity is identified as an "exceptional threat," an operator may be required to install water retention and treatment systems with enough capacity to treat the stormwater generated by a 2-year, 24 hour storm. Additional "advanced treatment" BMPs are outlined in the stormwater standards manual.[184]

Colorado

Outstanding Resource Waters

There is no information available regarding whether CDPHE has developed special regulatory requirements that pertain to outstanding resource waters (ORWs) or wetlands.

Certification Requirements

CDPHE does not specify any training or certification requirements, but the agency does provide information about training opportunities in storm water management and BMP inspection that BMP inspectors and contractors can pursue at community colleges near the City of Denver.[185]

Connecticut

Outstanding Resource Waters

CT DEP has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed water bodies or ORWs.[186]

Wetlands

CT DEP does not make a distinction in its regulatory approach between wetlands and other waterbodies, and the agency has not developed specific stormwater regulations that only pertain to wetlands.[187]

Certification Requirements

CT DEP does not require contractors, BMP installers, or site inspectors to obtain certification in their respective disciplines.[188] CT DEP performs site inspections to ensure that operators are properly installing and maintaining stormwater BMPs.[189]

Florida

Outstanding Resource Waters

FL DEP has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed water bodies or ORWs.

Wetlands
According to the survey respondent, FL DEP does not make a distinction in its regulatory approach between wetlands and other waterbodies, meaning the agency has not developed specific stormwater regulations that only pertain to wetlands.

Certification Requirements
FL DEP encourages contractors, BMP installers, and inspectors to obtain certification in their respective fields to ensure that BMPs are properly installed and maintained. FL DEP accepts evidence of relevant training and practical experience in the field of stormwater management as alternatives to certification.

Illinois

Outstanding Resource Waters
IL EPA has developed special requirements for construction activities that discharge to 303 (d) listed waterbodies impaired due to excessive turbidity and/or suspended solids. Construction activities discharging to these types of waterbodies are required to design and implement SWPPP that are designed to manage 25-year 24-hour rainfall events.[190]

Wetlands
There is no information available in regards to whether IL EPA makes a distinction in its regulatory approach between wetlands and other waterbodies.

Certification Requirements
IL EPA recommends that only qualified personnel conduct inspections of stormwater and erosion control BMPs. The NPDES permit identifies the following as qualified personnel; Licensed Professional Engineers, Certified Professionals in Erosion and Sediment Control (CPESC), Certified Erosion Sediment and Storm Water Inspectors. IL EPA does not require any specific certifications or training.[191]

Indiana

Outstanding Resource Waters
IN DEM has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed water bodies or ORWs.

Wetlands
IN DEM does not make a distinction in its regulatory approach between wetlands and other waterbodies with regards to construction stormwater, meaning the agency has not developed specific construction stormwater regulations that only pertain to wetlands.

Certification Requirements
IN DEM does not require operators, BMP installers, or inspectors to obtain certification in their respective fields, although the permit does require that a "trained individual" perform the "self-monitoring" required by the construction stormwater permit. The required monitoring involves evaluating the functionality of stormwater control measures over time. The primary objective is to identify any deficiencies in stormwater pollution prevention plans and if necessary recommend solutions for improving control measures thus ensuring permit compliance.

Iowa

Outstanding Resource Waters

There is no information available regarding whether IA DNR has developed specific BMP requirements for construction activities that discharge to 303(d) listed water bodies or ORWs.

Wetlands

There is no information available regarding whether IA DNR makes a distinction in its regulatory approach between wetlands and other waterbodies with regards to construction stormwater.

Certification Requirements

IA DNR's construction stormwater permit does not specify training or certification requirements for contractors, BMP installers, or BMP inspectors.

Kansas

Outstanding Resource Waters

KDHE does not necessarily consider the impacts of stormwater discharges on receiving waterbodies, and has not developed specific BMP requirements for construction activities that discharge storm water to high quality waters and/or outstanding state resource waters.[192]

Wetlands

KDHE does not make a distinction in its regulatory approach between wetlands and other waterbodies, and there are no specific stormwater regulations that only pertain to wetlands.[193]

Certification Requirements

KDHE does not require contractors, BMP installers, and/or those responsible for monitoring BMPs to obtain certification to ensure that BMPs are installed and maintained correctly.[194]

KDHE will perform inspections of construction activities to evaluate the condition and effectiveness of stormwater BMPS, but inspections are only conducted if the agency receives a complaint about noncompliance.[195]

Louisiana

Outstanding Resource Waters

The LA DEQ has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding resource waters (ORWs).[196]

Wetlands

LA DEQ does not make a distinction in its regulatory approach between wetlands and other water bodies in regards to stormwater management.[197]

Certification Requirements

LA DEQ does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain certification. LA DEQ performs site inspections to ensure that stormwater BMPs have been installed correctly and are being maintained.[198]

Massachusetts

Outstanding Resource Waters

MA DEP has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding resource waters (ORWs).

Wetlands

According to the survey respondent, MA DEP does not make a distinction in its regulatory approach between wetlands and other waterbodies with regards to stormwater management.

Certification Requirements

MA DEP does not require contractors or BMP installers to obtain certification to ensure that stormwater BMPs are installed correctly. MA DEP investigates complaints to determine whether BMPs have been installed and maintained correctly and whether contractors are complying with the provisions of their stormwater permits.

Michigan

Outstanding Resource Waters

MI DEQ has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding ORWs.

Wetlands

MI DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.

Certification Requirements

MI DEQ requires SWPPP designers and approvers as well as BMP inspectors to obtain specialized training. Furthermore, MI DEQ has developed a "Soil Erosion and Sedimentation Control Training Manual" that is available on its website.[199]

Minnesota

Outstanding Resource Waters

As previously mentioned, Minnesota has developed specific BMP requirements for each type of specially designated waterbody. The specially designated waterbodies include wilderness areas, the Mississippi River, scenic or recreational river segments, Lake Superior, lake trout lakes, trout lakes, scientific and natural areas, trout streams, and impaired waters.[200] Operators can access an electronic mapping tool on the MPCA's website that identifies all "special" and impaired waterbodies in the vicinity of their construction activity. The program also allows users to retrieve information about the specific BMP requirements that correspond with each special waterbody.[201]

Wetlands

Operators may be required to obtain permit approval from several different agencies, including the United States Army Corps of Engineers, Minnesota Department of Natural Resources, and the Minnesota Wetland Conservation Act, if there is an increased risk that their construction activities may adversely

impact wetlands. Adverse impacts may include "excavating the wetland or permanently flooding the wetland to create a stormwater pond."[202]

Certification Requirements
MPCA requires training for employees that develop and oversee implementation of the SWPPP. Employees that build, maintain, and inspect stormwater BMPs must also undergo specialized training. MPCA does not require certifications, but it does require SWPPP designers and BMP inspectors to pursue training at an appropriate local, state, federal, or private institution that demonstrates expertise in erosion prevention and stormwater management.[203]

Montana:

Outstanding Resource Waters
MT DEQ has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) impaired water bodies or outstanding resource waters (ORWs).[204]

Wetlands
MT DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.[205]

Certification Requirements
MT DEQ does not require contractors, BMP installers, and/or those responsible for inspecting BMPs to obtain certification. MT DEQ responds to reports of BMP failures and permit violations by performing site inspections. Most BMP failures occur as a result of "act of god" precipitation events, and are not necessarily due to ineffective stormwater BMPs.[206]

New York

Outstanding Resource Waters
Construction activities located within three specific watersheds within the State of New York are required to implement erosion and sedimentation controls as well as stormwater BMPs that comply with "enhanced phosphorus removal standards," as outlined in the New York Stormwater Management Design Manual.[207]

Wetlands
Construction activities that disturb state protected freshwater wetlands or the land immediately adjacent to a protected wetland must apply for a New York State Freshwater Wetland permit.[208]

Certification Requirements
In most cases, qualified inspectors must inspect construction activities and evaluate the effectiveness of erosion and sediment controls as well as post-construction stormwater BMPs. Some construction activities however, are exempt from this requirement. NYSDEC provides a specific set of conditions that must be met before a construction activity can be exempted from this requirement. For example, construction activities that involve the building of single family subdivisions with less than 25% impervious cover are exempt from this requirement, unless these construction activities discharge to a

303(d) impaired waterbody or the construction activity is located in a county that has more stringent exemption requirements.[209]

North Carolina

Outstanding Resource Waters

NC DENR has developed specific stormwater regulatory policies that pertain to outstanding resource waters.[210] These regulatory requirements are specified under the Outstanding Resource Waters section of the North Carolina Administrate Code.[211] According to the rule, construction activities that discharge stormwater to ORWs must follow either a low density development scheme or a high density development scheme. The low density option requires that stormwater runoff be transmitted through "vegetated conveyances" thus prohibiting "discrete stormwater collection systems."[212] Furthermore, operators that choose the low density option must maintain at least a 30 foot wide vegetative buffer between the construction activity and a ORW. The high density option requires the installation of detention ponds or a comparable stormwater control BMP. Furthermore, the stormwater collection systems must be designed to control runoff generated by a one inch rainfall event.[213]

Wetlands

NC DENR does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to the management of stormwater discharges.[214]

Certification requirements

NC DENR does not require contractors, BMP installers, or site inspectors to obtain certification. Engineers that participate in the design of SWPPPs must be licensed by the appropriate state licensing board.[215]

North Dakota

Outstanding Resource Waters

ND DoH has not developed specific stormwater regulatory requirements for construction activities that discharge to ORWs.

Wetlands

ND DoH does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to the management of stormwater discharges.

Certification Requirements

ND DoH does not require contractors, BMP installers, or inspectors obtain certification to ensure that BMPs are installed and maintained correctly. The agency relies on its own site inspections to ensure that stormwater BMPs are installed and maintained according to permit standards.

Ohio

Outstanding Resource Waters

OH EPA has not developed specific stormwater BMP requirements for construction activities that discharge storm water to waterbodies that are not meeting water quality standards.[216] OH EPA has developed three different types of construction stormwater permits, including a general construction

stormwater permit and two alternative construction stormwater permits that were specifically developed for construction activities located within the Olentangy and Big Darby Watersheds.[217] The alternative construction stormwater permits developed for the Olentangy and the Big Darby Watersheds contain stormwater BMP recommendations that were developed "through the TMDL process." The stormwater BMP recommendations were developed in an effort to protect and restore the exceptional warm-water habitats (EWH) and exceptional cold-water habitats (ECH) that are unique to these two watersheds.[218]. The stormwater BMP requirements specified in the alternative stormwater permits are more stringent than those specified in the general construction stormwater permit.[219]

Wetlands

OH EPA does make a distinction in its regulatory approach between wetlands and other waterbodies. According to the survey respondent, construction stormwater permits have specific restrictions that prohibit stormwater flows from altering the "natural hydrology, hydroperiod, and flora" of wetlands.[220]

Certification Requirements

OH EPA does not require contractors, BMP installers, and/or those responsible for inspecting BMPs to obtain certification to ensure that BMPs are installed and maintained correctly.[221] OH EPA relies on site inspections to evaluate stormwater BMPs that installed as part of a SWPPP.[222]

Oregon

OR DEQ has developed specific requirements for construction activities that discharge stormwater to 303(d) listed waterbodies that have TMDLs.[223] According to the construction stormwater permit, operators have the option of monitoring their stormwater discharge to determine whether supplemental BMPs are even required. If operators choose this option, they are required to monitor stormwater discharges for turbidity. If the turbidity is greater than 160 NTUs, the operators must review their erosion and sedimentation control plan and address any inadequacies. If the supplemental BMPs and other improvements fail to reduce turbidity, the operators must install one or more approved stormwater BMPs.[224]

The second option is to forego the monitoring and install one or more approved stormwater BMPs.[225] The approved stormwater BMPs include: compost berms, erosion control mats, and vegetative buffers. Operators may also choose to install trackifiers, which are used in combination with perimeter sediment control BMPs. Finally, operators may choose to treat stormwater discharges with electro-coagulation.[226]

Outstanding Resource Water

OR DEQ has not developed specific BMP requirements for construction activities that discharge storm water to high quality waters and/or outstanding state resource waters.[227]

Wetlands

OR DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies, and the agency has not developed specific stormwater regulations that only pertain to wetlands.[228]

Certification Requirements

OR DEQ does not require contractors, BMP installers, and/or those responsible for monitoring BMPs to obtain certification. OR DEQ does require operators and site inspectors to be knowledgeable in the "principles of erosion and sedimentation control." OR DEQ performs site inspections to determine whether stormwater BMPs have been installed correctly and whether BMPs are being properly maintained.[229]

South Carolina

Outstanding Resource Waters

Construction activities discharging stormwater to environmentally sensitive waterbodies such as ORWs or Shellfish Harvesting Waters may be required to inspect stormwater BMPs on a more frequent basis.[230]

Certification Requirements

Inspections must be performed by qualified personnel. Qualified personnel include those that have theoretical and practical knowledge of what is involved in assessing the condition of erosion and sedimentation controls. SWPPP preparers or personnel directly under the supervision of SWPPP preparers may perform inspections. Alternatively, anyone with certification from an agency-approved institution may perform inspections. Currently, only certifications issued by Clemson University are recognized by SC DHEC.

Texas

Outstanding Resource Waters

TCEQ has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding water resources (OWR).

Wetlands

TCEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.[231]

Certification Requirements

TCEQ does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain certification in their respective disciplines. TCEQ performs site inspections to ensure that stormwater BMPs have been installed properly and are performing as intended.[232]

Utah

Outstanding Resource Waters

UT DEQ has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding resource waters (ORW).[233]

Wetlands

UT DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.[234]

Certification Requirements

UT DEQ does not require contractors, BMP installers, and/or those responsible for inspecting BMPs to obtain certification. UT DEQ performs site inspections to assess whether stormwater BMPs have been installed correctly and whether they are being properly maintained.[235]

Vermont

Outstanding Resource Waters

VT DEC has developed specific stormwater BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies. Operators may be required to install these additional BMPs in an effort to preserve a waterbodies "risk category" designation.[236]

Wetlands

VT DEC does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to stormwater management.

Certification Requirements

VT DEC does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain certification. VT DEC performs site inspections to ensure that stormwater BMPs have been installed correctly and are being maintained.[237]

Virginia

Outstanding Resource Waters

VA DCR has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or OWRs.[238]

Wetlands

VA DCR does not make a distinction in its regulatory approach between wetlands and other water bodies in regards to stormwater management, and the agency has not developed specific stormwater regulations that only pertain to wetlands.[239]

Certification Requirements

VA DCR does not require contractors, BMP installers, or site inspectors to obtain certification.[240]

Washington:

Outstanding Resource Waters

WA DOE has not developed specific BMP requirements for construction activities that discharge stormwater to 303(d) listed waterbodies or outstanding resource waters.

Wetlands

WA DOE does not make a distinction in its regulatory approach between wetlands and other waterbodies with regards to stormwater management.

Certification Requirements
Personnel that are responsible for inspecting stormwater BMPs at permitted construction sites are required to obtain certification.

Wisconsin
Outstanding Resource Waters
Operators must review WI DNR's list of ORWs and Exception Resource Waters (ERWs), which is published on the agencies website, to determine whether their construction activity will be subject to more stringent BMP requirements. Construction activities that discharge to either ORWs or ERWs must implement SWPPPs designed to prevent the discharge of sediment and other pollutants above the waterbodies demonstrated background levels. Furthermore, operators must maintain "protective areas" of 75 feet between the boundaries of their construction activities and adjacent ORWs or ERWs[241].

Wetlands
There is no information available in regards to whether IL EPA makes a distinction in its regulatory approach between wetlands and other waterbodies.

Certification Requirements
There is no information available in regards to whether IL EPA requires contractors, BMP installers, and/or BMP inspectors to obtain certification or specialized training in their respective disciplines.

3.2.4 Monitoring Requirements

U.S. EPA Region 9
U.S. EPA Region 9 does not require operators to monitor stormwater discharges for specific parameters, such as TSS, oil and grease, and pH.[242]

Arkansas*
According to AR DEQ's construction stormwater permit, there is no indication that operators are required to monitor stormwater discharges for parameters such as TSS, pH, oil and grease.

California*
CSWRCB may require operators to monitor stormwater discharges for "visible pollutants" such as turbidity or sediment, or "non-visible" pollutants such as pH, pesticides, or nutrients. Construction activities that discharge stormwater to 303(d) listed waterbodies that are impaired due to siltation, sediment, or turbidity are required to monitor stormwater for the pollutant(s) that is the cause of impairment.

Construction activities that are likely to produce pollutants in quantities that may lead to non-attainment of water quality standards are required to monitor stormwater discharges for any "non-visible pollutants" such as pesticides, nutrients, and heavy metals that may be produced at on-site.[243]

Parameters Monitored
The parameters that must be monitored are determined on a case-by-case basis.

Monitoring Responsibility
When monitoring is required, the operator is responsible for sampling and analyzing stormwater discharges.

Frequency of Monitoring
The parameters that must be monitored and frequency of monitoring are determined on a case-by-case basis.

Connecticut
CT DEP does not require operators to monitor stormwater discharges for parameters such as TSS, ph, oil and grease.[244]

Florida
FL DEP does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil and grease, etc.

Illinois
IL EPA does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil and grease, etc.

Indiana
IN DEM does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil and grease, etc.

Iowa
IA DNR does not require operators to monitor stormwater discharges for parameters such as TSS. pH, oil and grease, etc.

Kansas
KDHE does not require operators to monitor stormwater discharges for parameters such as TSS, ph, oil and grease, etc.[245]

Louisiana
LA DEQ does not require operators to monitor stormwater discharges for parameters such as TSS, ph, oil and grease.[246]

Massachusetts
The U.S. EPA's general stormwater permit for construction activities does not require operators to sample and analyze stormwater discharges for parameters such as TSS, pH, oil, etc.

Michigan
MI DEQ does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil, etc.

Minnesota

Operators that choose to install alternative stormwater BMPs, besides those listed in MPCA's construction stormwater permit, are required to monitor stormwater run-off discharged from their construction activity. MPCA requires operators to develop a plan that outlines the frequency with which samples will be analyzed, sampling methods, and the lab(s) that will analyze the samples. Operators must monitor stormwater discharges for a period of two years, and monitoring records must be submitted to MPCA on an annual basis.[247]

Montana

MT DEQ does not require operators to monitor stormwater discharges for specific parameters such as TSS, oil and grease, pH, etc.[248]

New York

NYSDEC's construction stormwater permit not require that operators monitor stormwater discharges for specific parameters such as TSS, oil and grease, pH, etc.[249]

North Carolina

Parameters Monitored

NC DENR does not require operators to analyze stormwater discharges for specific parameters such as oil and grease, TSS, and pH. The construction stormwater general permit does require operators to make "qualitative observations" of stormwater discharges. Operators are required to provide a qualitative description of the stormwater discharge in regards to its clarity, floating solids, suspended solids, oil sheen, and any "other obvious indicators of stormwater pollution."[250] The monitoring requirements were implemented as a means of evaluating the effectiveness of stormwater BMPs.

Monitoring Responsibility

Operators are required to provide qualitative descriptions of stormwater discharges with regard to clarity, floating solids, suspended solids, oil sheen, etc.

Frequency of Monitoring:

Operators are required to perform inspections once every seven days unless the construction activity discharges to a 303(d) listed water body that is impaired due to turbidity or sedimentation, in which case inspections must be performed at least twice every seven days.[251]

North Dakota

ND DoH does not require operators to monitor stormwater discharges for specific parameters such as TSS, oil and grease, etc.

Ohio

Parameters Monitored

OH EPA requires permitted construction activities in the Big Darby Watershed to monitor stormwater discharges for TSS.[252]

Oregon

Parameters Monitored

Under normal circumstances, operators are not required to monitor stormwater discharges for parameters such as TSS, and pH. If a construction activity discharges to an impaired water body with a TMDL for sedimentation or turbidity, the operator of the construction activity may be required to monitor the stormwater discharge for turbidity and compare the turbidity to a benchmark value of 160 NTUs. If the level of turbidity in the stormwater discharge is greater than the benchmark value, then the operator must evaluate the effectiveness of his or her erosion and sedimentation control plan (ESCP) and address any inadequacies.

Monitoring Responsibility

When monitoring is required, the operator is responsible for sampling and analyzing stormwater discharges.

Frequency of Monitoring

The operator must obtain a sample that "represents the flow and characteristics of the stormwater discharge," and samples must be obtained weekly when "stormwater run-off is detectable."[253]

South Carolina

SC DHEC may require operators to monitor stormwater discharges for specific parameters, but monitoring requirements are assigned on a case-by-case basis.

Texas

TCEQ does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil and grease.[254]

Utah

UT DEQ does not require operators to monitor stormwater discharges for specific parameters such as TSS, oil and grease, and pH.[255]

Virginia

VA DCR does not require operators to monitor stormwater discharges for parameters such as TSS, pH, oil and grease.[256]

Vermont

VT DEC may require operators to monitor stormwater discharges for turbidity if the discharge from a BMP outlet structure is visibly discolored.[257]

Parameters Monitored

VT DEC requires operators to monitor for turbidity.

Monitoring Responsibility

When monitoring is required, the operator is responsible for sampling and analyzing stormwater discharges.

Washington

Operators are required to monitor stormwater discharges for pH. In addition, construction activities that disturb more than 1 acre are required to monitor stormwater discharges for turbidity, although the required method of analysis varies according to the number of acres disturbed. Construction activities that disturb more than 1 acre but less than 5 acres are required to monitor turbidity using a transparency tube. Construction activities that disturb more than 5 acres are required to monitor turbidity using a turbidity meter.[258]

Table 3-2. Summary of Monitoring Requirements from Washington Department of Ecology Construction Stormwater General Permit

Size of Soil Disturbance	Weekly Site Inspections	Weekly Sampling w/ Turbidity Meter	Weekly Sampling w/ Transparency Tube	Weekly pH sampling
Sites which disturb less than 1 acre	Required	Not Required	Not Required	Not Required
Sites which disturb 1 acre or more, but less than 5 acres	Required	Sampling Required – either method		Required
Sites which disturb 5 acres or more	Required	Required	Not Required	Required

3.2.5 Compliance and Enforcement

U.S. EPA Region 9

Enforcement

U.S. EPA Region 9 may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. Region 9 may also send violation notice letters to operators that are violating the terms of their stormwater permits.[259]

U.S. EPA Region 9 increases fines and the severity of other enforcement measures with each new permit violation. In other words, operators that repeatedly violate the terms of their stormwater permits will be issued increasingly more severe fines. These measures are designed to discourage repeat violations.[260]

Partnering With Other Agencies

The Region 9 Office has not delegated storm water program responsibilities to other state departments or sub-state jurisdictions. The Region 9 Office does partner with both city and country governments to increase the effectiveness of its stormwater permitting program.[261]

Arkansas

Enforcement

AR DEQ may enforce compliance by issuing fines or citations. AR DEQ may rely on additional enforcement measures, but there is limited enforcement information available in the construction stormwater permit.[262]

Connecticut

Enforcement

CT DEP may enforce compliance by exercising its authority to issue fines or citations, consent decrees or judgments, or consent orders. CT DEP may also send violation notice letters. In order to discourage operators from repeatedly violating the terms of their stormwater permits, CT DEP may deny stormwater permits to operators that have history of violations.[263]

Partnering With Other Agencies

CT DEP is the primary authority that administers the stormwater permitting program, and although municipalities are not directly involved in administering this program, they are required to regulate erosion and sedimentation generated by construction activities that disturb more than ½ acre. Stormwater permits require the installation of erosion and sedimentation control BMPs, and the stormwater permitting program supports the efforts of municipalities seeking to reduce erosion and sedimentation associated with construction activities.[264] In order to increase the overall effectiveness of the stormwater permitting program, CT DEP partners with town wetland and conservation offices and soil conservation districts.[265]

Florida

Enforcement

FL DEP enforces permit compliance through the issuance of fines or citations, violation notice letters, consent decrees or judgments, or consent orders. FL DEP does not have a well-defined policy regarding repeat violators, and these violations are handled on a case-by-case basis

Partnering With Other Agencies

FL DEP has an "unofficial" partnership with MS4s, which conduct inspections at construction activities that discharge to their stormwater systems. MS4s may report their findings relating to permit compliance to FL DEP.

Illinois

Enforcement

Operators are required to notify the IL EPA Field Operations Section office in the event that their construction activity fails to comply with one or more permit conditions. Operators must notify the office of such an incidence within 24 hours and then prepare and submit an "Incidence of Noncompliance" report within 5 days. There is no additional information available regarding enforcement measures employed by IL EPA.[266]

Partnering With Other Agencies

IL EPA is the primary permitting authority that administers the construction stormwater permitting program.

Indiana

Enforcement

IN DEM enforces permit compliance through the issuance of fines or citations and violation notice letters. IN DEM does not have a formal policy regarding repeat violators, and the agency address these violations on a case-by-case basis.

Partnering With Other Agencies
IN DEM has delegated permitting authority to 152 city and county MS4s. In addition, IN DEM partners with Soil and Water Conservation Districts (SWCDs) throughout the state to increase the overall effectiveness of the construction stormwater program.

Iowa
Enforcement
There is no information provided in the IA DNR's construction stormwater permit regarding the measures that may be employed to enforce permit compliance.

Partnering With Other Agencies
IA DNR is the primary authority that administers the construction stormwater permitting program in the state of Iowa. IA DNR partners with MS4s across the state in order to monitor BMP effectiveness and ensure permit compliance among construction activities that discharge to MS4s.[267]

Kansas
Enforcement
KDHE enforces compliance with the NPDES construction stormwater general permit by sending violation notice letter. KDHE may also enforce compliance by exercising its authority to issue fines, citations, or consent orders.[268] KDHE discourages operators/permittees from repeatedly violating the terms of their stormwater permits by increasing an individual operator's fines with each new permit violation.[269]

Partnering With Other Agencies
KDHE has not given permitting authority to other state departments or sub-state jurisdictions such as cities, counties, or commissions.[270]

Federal/State Agencies
KDHE does partner with municipal separate stormwater systems (MS4s) to increase the overall effectiveness of the stormwater permitting program.[271]

Louisiana
Enforcement
LA DEQ may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. LA DEQ may also send violation notice letters to operators that are violating the terms of their stormwater permits. The fines or citations for repeated violations are determined on a case-by-case basis by the enforcement office and legal staff. The enforcement office has the authority to issue larger fines to operators that repeatedly violate the terms of their stormwater permits, but again, the specific enforcement strategy and severity differs from case to case.[272]

Partnering With Other Agencies
LA DEQ has not delegated stormwater program responsibilities to other state departments or sub-state jurisdictions. In addition, LA DEQ does not partner or network with other agencies or programs to increase the overall effectiveness of its storm water program.[273]

Massachusetts

Enforcement

The U.S. EPA administers the NPDES stormwater permitting program in the State of Massachusetts. According to the survey respondent, permit compliance is enforced through fines, citations, or consent orders. Although the EPA administers the stormwater permitting program, Town Conservation Commissions are involved in administering the "Massachusetts Wetlands Protection Act." Conservation Commissions issue "order of conditions" to contractors, which outline requirements specified in the wetlands protection act.[274]

In an effort to increase the overall effectiveness of the stormwater permitting program, MA DEP partners with watershed councils, watershed associations, sister state agencies, and lake associations.

Michigan

Enforcement

MI DEQ may enforce permit compliance by issuing consent decrees or judgments, consent orders, or fines or citations. MI DEQ may also send violation notice letters to permittees that fail to comply with the terms of their construction stormwater permits.

MI DEQ may escalate enforcement action in response to repeat violations. Enforcement actions are usually directed towards permittees, but the agency may also directly fine contractors.

Partnering With Other Agencies

MI DEQ's stormwater program is tie-barred to the agency's Soil Erosion and Sedimentation Control (SESC) program. The SESC program is administered by state, county, and municipal agencies. MI DEQ performs periodic audits of state, county, and municipal agencies that administer SESC programs.

Minnesota

Enforcement

Local government agencies that enforce the general stormwater permits can issue citations, administrative penalty orders, and stop-work orders. Under state law, a permittee can incur a maximum fine of $10,000 for each NPDES permit violation per day. Although enforcement mechanisms are in place, MPCA puts greater emphasis on prevention, and is mainly concerned with helping operators develop and implement effective SWPPPs.[275]

Partnering With Other Agencies

There is no information available in regards to whether MPCA partners with other agencies to increase the overall effectiveness of its stormwater permitting program.

Montana

Enforcement

MT DEQ may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. MT DEQ may also send violation notice letters to operators that are in violation of the terms of their stormwater permit.[276]

MT DEQ does not have an official policy for dealing with repeat violators. Each stormwater permit application is considered in isolation. If an operator has a history of permit violations, this would have no bearing on the amount of a fine or citation issued to an operator for a permit violation.[277].

Partnering With Other Agencies

MT DEQ is the primary permitting authority that administers the stormwater permitting program, and MT DEQ has not delegated stormwater program responsibilities to other state agencies or sub-state jurisdictions. MT DEQ does not partner with other state agencies to increase the effectiveness of the stormwater permitting program.[278]

New York

Enforcement

NYSDEC may enforce permit compliance by issuing fines of up to $37,500 per day. The agency may also issue stop work orders or revoke permits in response to permit violations.[279]

Partnering With Other Agencies

NYSDEC partners with the Division of Fish, Wildlife and Marine Resources and the Tidal Wetland Regulatory Program among others to increase the overall effectiveness of the construction stormwater permitting program.

North Carolina

Enforcement

NC DENR may enforce compliance by exercising its authority to issue fines or citations. NC DENR may also send out violation notice letters and issue injunctions.[280] NC DENR has an "escalating fine structure" that increases the amount of an operator's fine with each new permit violation. This fine structure discourages operators/permittees from repeatedly violating the terms of their stormwater permits.[281]

Partnering With Other Agencies

NC DENR is the primary permitting authority for the state of North Carolina, and NC DENR has not delegated permitting authority to other state departments or sub-state jurisdictions. In an effort to increase the effectiveness of the stormwater permitting program, NC DENR partners with both state and local agencies, including the Sediment Control Program at the Division of Land Resources, the Division of Soil and Water Conservation, the Division of Coastal Management, local governments, universities, and cooperative extension offices.[282]

North Dakota

Enforcement

ND DoH enforces permit compliance through the issuance of fines or citations, violation notice letters, consent decrees or judgments, or consent orders. Operators that repeatedly violate the terms of their permits must undergo more frequent inspections by ND DoH and they may be subject to "escalating" fines and enforcement measures.

Partnering With Other Agencies

According to the survey respondent, ND DoH is the only state agency that directly regulates stormwater discharges in the state of North Dakota. Furthermore, ND DoH does not partner with other state or local agencies to increase the effectiveness of the stormwater program.

Ohio

Enforcement

OH EPA may enforce compliance by exercising its authority to issue fines, citations, consent decrees or judgments, or consent orders. OH EPA also sends violation notice letters to operators that are not in compliance with the terms of the construction stormwater permit.[283]

Federal/State Agencies

OH EPA partners with the Ohio Department of Natural Resources (OH DNR) in an effort to increase the overall effectiveness of the stormwater permitting program. OH EPA does not however delegate permitting authority to the OH DNR or any other state agencies.

Oregon

Enforcement

OR DEQ may enforce compliance by exercising its authority to issue fines, citations, consent decrees or judgments. OR DEQ also sends violation notice letters to operators that violate the terms of the construction stormwater permit.[284]

Partnering With Other Agencies

OR DEQ has delegated permitting authority to local agencies. Local agencies review SWPPPs, conduct site inspections, investigate complaints, and identify construction activities that are violating the terms of the NPDES construction permit. OR DEQ is responsible for enforcing permit compliance and for issuing civil penalties to operators that are in violation of stormwater permits.[285]

OR DEQ partners with local cities in an effort to increase the overall effectiveness of the stormwater permitting program.[286]

South Carolina

Enforcement

Permittees that have a history of noncompliance may be required to carry out site inspections more frequently. There is no additional information available regarding the measures SC DHEC uses to enforce permit compliance

Partnering With Other Agencies

SC DHEC partners with the Office of Ocean Coastal Resource Management (OCRM) in administering the stormwater permitting program in eight coastal counties. OCRM reviews all construction stormwater permit applications to determine whether the proposed activities comply with the State's Coastal Zone Management Plan.

Texas

Enforcement

TCEQ may enforce compliance by issuing fines or citations or by sending violation notice letters to operators that are in violation of the terms of their stormwater permit.[287]

Partnering With Other Agencies

Not all construction activities are permitted under the construction stormwater permitting program; certain municipal construction activities may be permitted under the general permit for Phase II (small) MS4s.[288] [289] The general permit for Phase II MS4s is administered by the MS4 permitting program.

Federal/State Agencies

TCEQ does not partner with other agencies or programs to increase the overall effectiveness of the stormwater program.[290]

Utah

Enforcement

UT DEQ may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. UT DEQ may also send violation notice letters to operators that are violating the terms of their stormwater permits.[291] UT DEQ discourages operators from repeatedly violating the terms of their stormwater permits by increasing an operator's penalty with each new permit violation.[292]

Partnering With Other Agencies

UT DEQ is the primary permitting authority, and UT DEQ has not delegated permitting responsibilities to other state or substate agencies. UT DEQ partners with municipalities to increase the effectiveness of the stormwater permitting program.[293]

Vermont

Enforcement

VT DEC may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. VT DEC may also send violation notice letters to operators that are violating the terms of their stormwater permits. VT DEC may issue a "formal enforcement action" to any operator that repeatedly violates the conditions of his or her stormwater permit.[294]

Partnering With Other Agencies

VT DEC is the primary permitting authority in the state of Vermont, and VT DEC has not delegated program responsibilities to other state or sub-state agencies.

Federal/State Agencies

VT DEC does partner with the U.S. EPA, COE, and the Natural Resources Conservation Service.[295]

Virginia

Enforcement

VA DCR may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. VA DCR may also send violation notice letters to operators that are violating the terms of the stormwater permit.[296]

Partnering With Other Agencies
VA DCR is the primary permitting authority and administrator of the stormwater permitting program, and the agency has not delegated stormwater program responsibilities to other state departments or sub-state jurisdictions. VA DCR does partner with the Virginia Department of Environmental Quality (VA DEQ) to increase the overall effectiveness of the stormwater permitting program.[297]

Washington
Enforcement
Permit compliance is enforced through fines or citations, consent decrees or judgments, or consent orders. WA DOE may also send violation notice letters to operators that are not complying with permit requirements. WA DOE may issue administrative penalties to operators/contractors that repeatedly violate the terms of their permits.

Wisconsin
Enforcement
Three agencies are involved in regulating stormwater discharges in the state of Wisconsin, including WI DNR, the Department of Transportation, and the Department of Commerce. In regards to enforcement, IL DNR may issue notification letters to operators that are failing to comply with the terms of their construction stormwater permits. The agency will create a time frame during which the operator must address any deficiencies in the SWPPP. If sufficient changes are not implemented with the time allotted, construction stormwater permits may be revoked. There is not information available regarding fines or citations[298].

3.3 Construction Nonpoint Source Pollution

An "earth change" is a human-made change in the natural cover or topography of land that may result in soil erosion or sedimentation of surface waters. Earth change activities include construction activities in urban and agricultural settings. Earth change activities do not include the practice of plowing and tilling soil.

3.3.1 BMP Requirements and Recommendations

U.S. EPA Region 3
Specific BMP Recommendations
The U.S. EPA Region 3 has developed specific BMP requirements for controlling NPS pollution associated with urban earth change activities, agricultural earth change activities, and forestry-related change activities.[299]

BMP Selection Process
The U.S. EPA Region 3 utilizes several models to evaluate the effectiveness of NPS BMPs and to determine which BMPs to recommend. The STEPL (Spreadsheet Tool for Estimating Pollutant Load) model is used to calculate the nutrient and sediment loads that may be generated by different land use activities. The model is also used to estimate the pollutant load reductions that may result from the implementation of particular BMPs.[300] The U.S. EPA Region 3 also uses the AVGWLF (Generalized Watershed Loading Function with an ArcView (AV) geographic information systems (GIS) interface)

model. The AVGWLF model is a nonpoint source pollution model that can be used to evaluate the effectiveness of different NPS BMPs and other NPS mitigation strategies.[301] In addition, the U.S. EPA Region 3 uses the HSPF (Hydrologic Simulation Program Fortran) model, which can be used to estimate the "time history of the quantity and quality of runoff" that may result from changes in a watershed's land-use patterns and/or changes that may result from the implementation of certain land management practices.[302] The U.S. EPA Region 3 also uses the Region 5 Model, which is an excel workbook that provides estimates of sediment and nutrient load reductions that may result from the installation of particular agricultural and urban BMPs.[303]

Evaluating BMP Effectiveness

The U.S. EPA Region 3 relies on agency studies to evaluate the effectiveness of specific NPS BMPs. The Regional Office also conducts site inspections to assess the performance and effectiveness of NPS BMPs.[304]

U.S. EPA Region 9

Specific BMP Recommendations

U.S. EPA Region 9 has developed specific BMP recommendations/requirements for controlling NPS pollution associated with urban earth change activities, agricultural earth change activities, and forestry-related earth change activities**.**

Evaluating BMP Effectiveness

U.S. EPA Region 9 relies on agency studies and industry research to evaluate the effectiveness of BMPs and to determine which BMPs to recommend.[305] The agency also performs site inspections and monitors water quality to evaluate Evaluating BMP Effectiveness.[306]

Indiana

Specific BMP Recommendations

The Indiana Department of Environmental Management (IDEM) recommends specific best management practices (BMPs) for controlling nonpoint source pollution associated with agricultural earth change activities and urban earth change activities. IDEM does not recommend specific BMPs for managing NPS pollution associated with forestry earth change activities.[307]

BMP Selection Process

According to the survey respondent, IDEM utilizes models and other assessment tools to determine which BMPs should be implemented or to evaluate the effectiveness of proposed BMPs.[308]

Evaluating BMP Effectiveness

IDEM does not conduct its own studies to evaluate the effectiveness of NPS BMPs.[309]

Iowa

Specific Best Management Practice (BMP) Recommendations

Several state agencies administer nonpoint source pollution programs in the State of Iowa, including the Iowa Natural Resources Conservation Service (IA NRCS) and the Iowa Department of Agriculture. Both agencies recommend specific best management practices (BMPs) for controlling nonpoint source

pollution associated with earth change activities in agricultural settings and earth change activities in urban settings.[310]

IA NRCS is developing watershed management plans that will include specific BMP recommendations for addressing nonpoint source pollution that discharges to waterbodies that are on the 303 (d) impaired list.[311] Currently, there are only plans to develop specific NPS pollution BMP recommendations for urban settings and not agricultural settings.[312]

Evaluating BMP Effectiveness

In order to assess the effectiveness of nonpoint source (NPS) pollution BMPs, IA NRCS uses agency studies and conducts "water monitoring." IA NRCS also relies upon modeling and a "sediment delivery calculator" to estimate the performance and effectiveness of NPS pollution BMPS.[313]

IA NRCS uses a variety of assessment tools to determine which NPS BMPs to recommend, including GIS land use assessments, GIS stream bank assessments, and GIS gully assessments for determining sediment delivery. IA NRCS also relies upon GIS urban assessments to determine impervious surface area.[314]

Kansas

Specific BMP Recommendations

The Kansas Department of Health and Environment (KDHEKS) has not developed specific recommendations/requirements for controlling nonpoint source (NPS) pollution associated with "earth change" activities.[315]

Louisiana

Specific BMP Recommendations

The Louisiana Department of Environmental Quality (LA DEQ) has developed specific BMP recommendations/requirements for controlling nonpoint source pollution associated with urban earth change activities. LA DEQ has not developed NPS BMP recommendations/requirements for agricultural and forestry-related earth change activities.[316]

BMP Selection Process

LA DEQ uses models and other assessment tools to evaluate the effectiveness of NPS BMPs and to determine which BMPs to recommend. The AAGNPS (Annualized Agricultural Nonpoint Source) Pollutant Loading Model is used to evaluate the effectiveness of NPS pollution and watershed management practices.[317] The SWAT Model is a "river basin scale model" that can be used to estimate the watershed-level impacts that may result from the use of various land management practices.[318] LA DEQ also utilizes GIS modeling, TMDL modeling, and field investigations to evaluate NPS BMPs.[319]

Evaluating BMP Effectiveness

LA DEQ relies on agency studies, industry research and site inspections to evaluate the effectiveness of NPS BMPs.[320]

Maine

Specific BMP Recommendations

The Maine Department of Environmental Protection (ME DEP) has developed specific recommendations/requirements for controlling nonpoint source (NPS) pollution associated with urban earth change activities, agricultural earth change activities, and forestry-related earth change activities.[321] The "Maine Erosion and Sediment control BMPs" manual contains pertinent information about erosion and sedimentation control BMPs, including BMP design specifications and information about installation and maintenance.[322] The "Manual of Best Management Practices (BMP) For Maine Agriculture" contains information about BMPs that are best suited to control NPS pollution and stormwater associated with agricultural earth change activities.[323] This manual contains detailed technical information about individual BMPs, a BMP selection matrix, and BMP guidelines for protecting sensitive waterbodies.[324] In addition, ME DEP has developed a BMP manual specifically for forestry-related activities, "Best Management Practices for Forestry: Protecting Maine's Water Quality."[325]

BMP Selection Process

ME DEP relies on the ME DEP Lakes Phosphorus Control Method.[326]

Evaluating BMP Effectiveness

ME DEP relies on agency studies, and site inspections to evaluate the effectiveness of NPS BMPs and to determine which BMPs to recommend. Both agency studies and site inspections are performed infrequently.[327]

Michigan

Specific BMP Recommendations

MI DEQ has not developed specific NPS BMP recommendations for agricultural earth change activities, urban earth change activities, and forestry-related earth change activities.[328] MI DEQ's NPS management plant does recommend general NPS BMPs and if references NPS BMP manuals.

BMP Selection Process

MI DEQ relies on the methods outlined in the "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual."[329] The manual includes instructions for calculating and documenting pollutant reductions for a variety of pollutant sources, including sediment, sediment-borne phosphorus and nitrogen, feedlot runoff, and commercial fertilizer, pesticides, and manure. In addition, MI DEQ relies on the STEPL (Spreadsheet Tool for Estimating Pollutant Load) model, which is used to calculate nutrient and sediment loads that may be generated by different land use activities. The model is also used to estimate the pollutant load reductions that may result from the implementation of particular BMPs.[330]

Evaluating BMP Effectiveness

MI DEQ performs sites inspections to evaluate the effectiveness of NPS BMPs installed at construction activities.

Minnesota

There are several Minnesota Pollution Control Agency (MN MPCA) programs that address NPS pollution management, including the Minnesota Clean Water Partnership, the Minnesota Clean Water Legacy, the Impaired Waters Program and Section 319 Programs.[331] [332]

Specific BMP Recommendations

MN MPCA has not developed specific recommendations or requirements for controlling NPS pollution associated with earth change activities, because MN MPCA regulates all applicable earth change activities as point sources. MN MPCA has developed extensive guidance for controlling point source pollution associated with earth change activities, and this guidance may be applied to non-point sources when necessary. The agency has also developed laws that prohibit the creation of "nuisance conditions," and these laws may be applied to NPS pollution, as well.[333]

Operators that apply for financial assistance through one of the MN MPCA programs that addresses NPS pollution are provided with specific guidance regarding which BMPs will "effectively address specific source(s) of NPS pollution". Specific BMP recommendations are developed for each individual operator applying for financial assistance to implement NPS BMPs.[334]

Most agricultural earth change activities are regulated under the stormwater permitting program. For those earth change activities that are not regulated under the stormwater permitting program, MN MPCA is relying on the TMDL program to implement BMPs for the purpose of NPS pollution management.[335]

BMP Selection Process

MN MPCA relies on the SWAT Model, the BASINS model, and the HSPF model to estimate the effectiveness of BMPs. SWAT (Soil and Water Assessment Tool) is a "river basin scale model" that can be used to estimate the watershed-level impacts that may result from the use of various land management practices.[336] HSPF (Hydrologic Simulation Program Fortran) model, which can be used to estimate the "time history of the quantity and quality of runoff" that may result from changes in a watershed's land-use patterns and/or changes that may result from the implementation of certain land management practices.[337] The BASIN (Better Assessment Science Integrating Point and Nonpoint Sources) model has been designed to "support environmental and ecological studies in a watershed context."[338]

Evaluating BMP Effectiveness

The Impaired Waters Program may monitor the water quality of receiving waters that are under TMDLs in order to evaluate the effectiveness of BMPs. In addition, MN MPCA and other agencies may utilize the "eLink computer system" to estimate sedimentation and phosphorus load reductions that may result from the implementation of certain BMPs.[339] [340]

Missouri

Specific BMP Recommendations

The Missouri Department of Natural Resources (MO DNR) recommends specific best management practices for the purpose of managing nonpoint source (NPS) pollution associated with earth change activities[341]. MO DNR's NPS regulations do not specify numeric limitations, design standards, or performance standards.

BMP Selection Process
The MO DNR recommends the same preferred NPS BMPs that are identified by the U.S. EPA and the Natural Resources Conservation Service (MO NRCS). MO DNR does not use models or other assessment tools to determine which BMPs should be implemented or to evaluate the effectiveness of proposed BMPs.[342]

Application Form
Recommended NPS BMPs are listed in NPDES stormwater permits.[343]

Evaluating BMP Effectiveness
The MO DNR does not determine the effectiveness of NPS pollution BMPs.[344]

Nevada

Specific BMP Recommendations
The Nevada Department of Environmental Protection (NV DEP) has developed specific nonpoint source (NPS) pollution BMP recommendations for agricultural earth change activities, urban earth change activities, and forestry-related earth change activities.[345] NV DEP's NPS Pollution Management Program played an important role in developing the state's Best Management Practices Handbook and it continues to update the document.[346] The BMP handbook provides detailed information regarding the installation and maintenance of stormwater and NPS pollution BMPs. The manual provides photographs and diagrams showing BMPs that have been installed correctly and BMPs that were not installed correctly. The manual has an appendix devoted to "re-vegetation seed mixes" that includes information about the composition of seed mixes that may be used for stabilizing disturbed soil.[347]

BMP Selection Process
NV DEP does not use models to determine which NPS BMPs to recommend or to evaluate the effectiveness of NPS BMPs.[348]

Evaluating BMP Effectiveness
NV DEP relies on product specifications and site inspections to evaluate the effectiveness of NPS pollution BMPs.[349]

New Jersey

Specific BMP Recommendations
The New Jersey Department of Environment Protection (NJ DEP) has developed NPS BMP recommendations/requirements for controlling NPS pollution associated with urban earth change activities and agricultural earth change activities.[350]

BMP Selection Process
NJ DEP does not use models or other assessment tools to evaluate the effectiveness of NPS BMPs or to determine which BMPs to recommend[351].

Evaluating BMP Effectiveness

NJ DEP relies on industry research, product specifications, site inspections, and NJCAT (New Jersey Corporation for Advanced Technology) to evaluate the effectiveness of NPS BMPs. NJCAT represents a public/private partnership, and the corporation provides "technology innovators with the technical, commercial, and regulatory assistance required" to deliver new technologies to the marketplace. NJCAT has developed a technology verification and certification program to evaluate new environmental technologies, including NPS BMPs, and NJ DEP relies upon NJCAT's assessments as part of its review of BMPs[352]. NJ DEP relies on the New Jersey Stormwater BMP Manual, which contains technical standards for soil erosion and sediment control BMPs.[353]

New Mexico

Specific BMP Recommendations

The New Mexico Environment Department (NM ED) recommends specific NPS pollution BMPs for the purpose of managing NPS pollution associated with earth change activities.[354]

BMP Selection Process

NM ED utilizes several models to evaluate the effectiveness of NPS BMPs and to determine which BMPs to recommend for NPS pollution management. The STEPL (Spreadsheet Tool for Estimating Pollutant Load) model is used to calculate the nutrient and sediment loads that may be generated by different land use activities. The model is also used to estimate the pollutant load reductions that may result from the implementation of particular BMPs.[355] The SSTEMP (Stream Segment Temperature Model) is used to evaluate the potential impacts of stream withdrawals and returns on instream temperature.[356] The Region 5 model is an excel workbook that provides estimates of sediment and nutrient load reductions that may result from the installation of particular agricultural and urban BMPs.[357] Finally, NM ED utilizes the WEPP: Road computer program, which is based on the Agricultural Research Service's WEPP (Water Erosion Prediction Project) model. The WEPP:Road program can be used to estimate runoff and sediment yield that may be generated by roads, compacted landings, compacted skid trails, compacted foot, cattle, or off-road vehicle trails.[358]

Evaluating BMP Effectiveness

NM ED relies on agency studies and industry research to evaluate the effectiveness of NPS BMPs and to determine which BMPS to recommend.[359]

North Carolina

The North Carolina Division of Water Quality's (NC DWQ) NPS pollution regulations specify design standards, performance standards and best management practices (BMPs).

Specific BMP Recommendations

The NC DWQ has developed specific NPS BMP recommendations for agricultural earth change activities, urban earth change activities, and forestry-related earth change activities.[360]

BMP Selection Process

NC DWQ utilizes the "Modified Schueler's Simple Method for Urban Stormwater Nutrient Loading" to determine which NPS pollution BMPs to recommend for urban earth change activities. In addition, the

NC DWQ relies upon a "state-developed nitrogen loss estimation worksheet for agricultural Nitrogen loading" to determine which NPS pollution BMPs to recommend for agricultural settings.[361]

Evaluating BMP Effectiveness

The NC DWQ relies upon agency studies, industry research, and site inspections to assess the effectiveness and performance of NPS BMPs. NC DWQ is also able to gather information about Evaluating BMP Effectiveness through compliance oversight of local governments that implement NPS pollution regulatory requirements.[362]

North Dakota

Specific BMP Recommendations

Although the North Dakota Department of Health (ND DOH) has developed specific NPS pollution recommendations for agricultural run-off, the agency has not developed specific recommendations for NPS pollution associated with earth change activities.[363]

Oregon

One of the strategies that the ORDEQ NPS program has adopted in its effort to improve state water quality is to coordinate efforts on a watershed basis. Oregon has 21 watershed basins and 91 sub-basins, and ORDEQ's NPDES permitting and TMDL programs are administered at the sub-basin level. ORDEQ is in the process of developing 1,153 federally approved TMDLs by the end of 2010, and these TMDLs will aid DEQ in setting priorities with regards to 319 NPS management program grants.[364]

Specific BMP Recommendations

The Oregon Department of Environmental Quality (ODEQ) has developed specific recommendations/requirements for managing NPS pollution associated with earth change activities in urban settings.[365] Although ODEQ has developed recommendations for managing NPS pollution associated with earth change activities, the agency does not recommend specific NPS BMPs.[366]

In addition to the NPS program administered by ODEQ, Oregon has a Coastal Nonpoint Pollution Control Program (CNPCP), which was developed in response to requirements set forth in Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990 [CZARA]. The CNPCP provides guidance for managing NPS pollution associated with agricultural activities, forestry activities, urban areas, marinas, hydro-modification activities that fall within the coastal zone.[367]

Furthermore, NPS pollution is managed under the TMDL program, which requires municipalities to implement "TMDL Implementation Plans" in an effort to address NPS pollution. In agricultural settings, NPS pollution is addressed by "Agricultural Water Quality Management Plans." The United States Forest Service (USFS) and the Bureau of Land Management (BLM) have developed "Water Quality Restoration Plans" that address NPS pollution. Earth change activities that are conducted on privately owned forests are required under the Oregon Forest Practices Act to install BMPs for the purpose of NPS pollution management.

BMP Selection Process
ORDEQ does not utilize models or other assessment tools to evaluate NPS BMPs or to determine which BMPs to recommend.[368]

Vermont
Specific BMP Recommendations
The Vermont Department of Environmental Conservation (VT DEC) has developed specific NPS BMP recommendations that can be implemented to control NPS pollution associated with both earth change activities and agricultural earth change activities.[369]

BMP Selection Process
VT DEQ does not use models to evaluate BMPs or to determine which BMPs to recommend.[370]

Evaluating BMP Effectiveness
VT DEC relies on industry research, product specifications, and site inspections to evaluate the effectiveness of BMPs. VT DEC also relies on academic research to evaluate Evaluating BMP Effectiveness.

Virginia
Specific BMP Recommendations
The VA DCR recommends specific best management practices (BMPs) for controlling nonpoint source (NPS) pollution associated with urban earth change activities. VA DCR does not recommend specific BMPs for managing NPS pollution associated with agricultural and forestry-related earth change activities. VA DCR's NPS regulations specify design standards, performance standards, and specific best management practices (BMPs).[371]

BMP Selection Process
VA DCR does not use models or other assessment tools to determine which BMPs to recommend or to evaluate the effectiveness of NPS BMPs.[372]

Evaluating BMP Effectiveness
VA DCR relies on agency studies, industry research, product specifications and site inspections to evaluate the effectiveness of NPS BMPs.[373] In addition, VA DCR monitors the effectiveness of "proprietary manufactured BMPs."[374]

3.3.2 Additional Permit Requirements

U.S. EPA Region 3
Outstanding Resource Waters
U.S. EPA Region 3 has not developed specific NPS BMP requirements for earth change activities that discharge to 303(d) listed waterbodies or outstanding resource waters (ORWs).[375]

Wetlands
U.S. EPA Region 3 does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.

Certification Requirements
U.S. EPA Region 3 requires BMP installers and BMP inspectors to obtain specialized training in their respective disciplines. Certifications are not required. U.S. EPA Region 3 relies on site inspections to verify that NPS BMPs are being installed and maintained properly.[376]

Indiana

Outstanding Resource Waters
IDEM's regulatory approach towards urban NPS pollution and agricultural NPS does not directly account for impacts to receiving waterbodies, and IDEM does not develop specific NPS BMP requirements for earth change activities discharging to 303(d) list waterbodies that have TMDLs.[377]

Wetlands
IDEM does not make a distinction in its regulatory approach between wetlands and other water bodies, and IDEM has not developed specific NPS regulations that only pertain to wetlands.[378]

Certification Requirements
IDEM does not require contractors, BMP installers, or those responsible for inspecting BMPs to receive specialized training. IDEM conducts random site inspections at earth change activities to ensure that NPS BMPs are installed and maintained correctly. NPS BMPS that are installed as part of a grant-funded effort to control NPS pollution must be inspected on a regular basis. Grant-funded NPS pollution control projects are also subject to random inspections by IDEM.[379]

Iowa

Wetlands
In regards to the management of NPS pollution, IA NRCS does not make a distinction in its regulatory approach between wetlands and other waterbodies.[380]

Certification Requirements:
Although IA NRCS BMP installers and BMP inspectors are not required to obtain certification, contractors must obtain approval from the local soil and water conservation district in order to install BMPs for the purpose of managing NPS pollution associated with agricultural earth change activities[381]. IA NRCS is able to ensure that NPS pollution BMPs are installed and maintained correctly by requiring that municipalities monitor BMP installation and perform BMP inspections in urban areas. In agricultural settings, soil and water conservation districts are responsible for inspecting NPS pollution BMPs.[382]

Kansas

Wetlands
KDHEKS does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[383]

Certification Requirements

Operators, BMP installers, and BMP inspectors are not required to obtain certifications or specialized training in their respective disciplines. KDHEKS provides technical assistance to help ensure that NPS BMPs are installed and maintained correctly.[384] According to the Kansas Nonpoint Source Pollution Management Plan, KDHEKS "will use some portion of 319 Section grant funds to support technical assistance activities of partner organizations," including the Kansas Rural Center Clean Water Farms Program, the River Friendly Farm Program, and the Kansas Wetlands and Riparian Areas Alliance.[385]

Louisiana

The LA DEQ may require operators to install special NPS BMPs at construction activities that discharge to 303(d) listed waterbodies that have TMDLs.[386]

Wetlands

The LA DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[387]

Certification Requirements

The LA DEQ does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain specialized training in their respective disciplines. LA DEQ relies on site inspections to determine whether NPS BMPs are being installed and maintained correctly.[388]

Maine

Outstanding Resource Waters

ME DEP has developed special nonpoint source BMP requirements for urban earth change activities discharging to 303(d) impaired water bodies and outstanding resource waters (ORWs). Urban Earth change activities that discharge to impaired waterbodies and "waters at risk" are required to adhere to more stringent erosion and sedimentation control requirements, which are specified in ME DEP's stormwater rules.[389]

In addition, "residual designation authority was invoked" in the Long Creek watershed, and as a result, nonpoint source stormwater runoff is now directly regulated under the NPDES permitting program. According to the residual designation authority, which is supported by the Federal Clean Water Act, "a federal NPDES permit can be required for an otherwise unregulated stormwater discharge" if the Environmental Protection Agency (EPA) concludes that the discharge contributes to non-attainment of water quality standards.[390] The Long Creek watershed has experienced widespread land-use changes and an increase in impervious surface area in the past few decades. In 1998, Long Creek was identified as a "NPS priority watershed" because of its "potential high value in an urban setting," and funding was allocated for restoration. In hopes of accelerating the restoration effort, and in response to a petition by the Conservation Law Foundation, the EPA Region 1 Office invoked residual designation authority in 2008.[391]

ME DEP has not developed BMP recommendations/requirements for agricultural earth change activities.[392]

Wetlands
ME DEP does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[393]

Certification Requirements
Operators, BMP installers, and BMP inspectors are not required to obtain certifications or specialized training in their respective disciplines. ME DEP conducts site inspections to determine whether BMPs are performing as intended.[394]

Michigan
Outstanding Resource Waters
MI DEQ has not developed specific NPS pollution recommendations or requirements for earth change activities that discharge to 303(d) listed waterbodies or ORWs.

Wetlands
MI DEQ does not make a distinction in its regulatory approach between wetlands and other water bodies in regards to NPS pollution management.

Certification Requirements
MI DEQ requires BMP inspectors to demonstrate their qualifications and expertise by obtaining certification in BMP inspection.[395] MI DEQ also performs site inspections to ensure that NPS BMPs are installed and maintained correctly.

Minnesota
Outstanding Resource Waters
When an earth change activity discharges to a 303(d) listed water body, appropriate MN MPCA programs may recommend BMPs that specifically target the pollutants for which TMDL(s) have been developed. Thus, BMP recommendations vary depending on the TMDL(s) that has developed for a water body.[396]

Currently, most NPS pollution associated with agricultural earth change activities is exempt from regulation under MN MPCA regulatory programs. MN MPCA is in the process of assigning responsibility for agricultural NPS pollution to the TMDL program. The TMDL program is likely to concentrate on agricultural run-off that is produced as a result of "plowing and tilling," which MN MPCA considers an earth change activity.[397]

Wetlands
MN MPCA requires the installation of additional BMPs, including settling basins, at earth change activities that discharge to wetlands. In 2008, three wetland complexes were included on the 303(d) list of Impaired Waters.[398]

Certification Requirements
Operators, BMP installers, and BMP inspectors are not required to obtain certifications or specialized training in their respective disciplines. ME DEP conducts site inspections to determine whether BMPs are performing as intended.

Missouri

Outstanding Resource Waters

MO DNR's approach towards NPS pollution associated with urban earth change activities does account for impacts to receiving waterbodies. The agency's stormwater permitting authority may add specific NPS BMP requirements to stormwater permits that are issued to urban earth change activities discharging to 303(d) listed waterbodies that have TMDLs.[399]

MO DNR's approach towards NPS pollution associated with agricultural earth change activities does not account for impacts to receiving waterbodies. Thus, MO DNR will unlikely add specific NPS BMP requirements to stormwater permits issued to agricultural earth change activities.[400]

Wetlands

In regards to the management of NPS pollution, MO DNR does not make a distinction in its regulatory approach between wetlands and other waterbodies.[401]

Certification Requirements

MO DNR does not require that contractors, BMP installers, or those responsible for inspecting BMPs receive specialized training to ensure that BMPs are installed and maintained correctly.[402] MO DNR may perform inspections to ensure that NPS BMPs are being adequately maintained and are performing effectively.[403]

Nevada

Outstanding Resource Waters

NV DEP has not developed specific NPS pollution recommendations or requirements for earth change activities that discharge to 303(d) listed waterbodies or ORWs.[404]

Wetlands

NV DEP does not make a distinction in its regulatory approach between wetlands and other water bodies in regards to NPS pollution management.[405]

Certification Requirements

NV DEP does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain specialized training in their respective disciplines. NV DEP conducts site inspections to determine whether NPS pollution BMPs have been installed properly and are performing as intended.

New Jersey

Outstanding Resource Waters

NJ DEP does not require operators to install special BMPs to control NPS pollution originating from earth change activities that discharge to 303(d) listed waterbodies or outstanding resource waters (ORWs).[406]

Wetlands

NJ DEP does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[407]

Certification Requirements

NJ DEP does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain specialized training in their respective disciplines. Compliance oversight is provided by local Soil Conservation Districts, which review and certify erosion and sedimentation control plans for earth change activities that disturb 5000 sq. feet or more.[408]

New Mexico

The U.S. EPA administers the NPDES permitting program in the state of New Mexico, and the EPA is primarily responsible for developing NPS pollution requirements. NM ED does have authority under Section 401 of the CWA to inspect NPS BMPs that have been installed at earth change activities and to "assess compliance with conditional certifications."[409]

Outstanding Resource Waters

NM ED has not developed specific NPS pollution BMP recommendations for earth change activities that discharge to 303(d) listed waterbodies or ORWs.[410]

Wetlands

NM ED does not make a distinction in its regulatory approach between wetlands and other water bodies in regards to NPS pollution management.[411]

Certification Requirements

NM ED does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain specialized training in their respective disciplines. NV DEP conducts site inspections to determine whether NPS pollution BMPs have been installed properly and are performing as intended.
New Mexico does not have NPDES primacy. Several of the above questions are answered in the negative because EPA has authority to set those requirements. Our agency does have authority under Section 401 of the CWA, and conducts implementation monitoring to assess compliance with conditional certifications.

North Carolina

Outstanding Resource Waters

The NC WQD has developed special regulatory requirements for earth change activities that discharge to 303(d) listed waterbodies that are impaired due to nutrients. These regulatory requirements are implemented to reduce nutrient loads, and the requirements apply to NPS pollution associated with urban earth change activities and agricultural earth change activities.[412]

Wetlands

The NC WQD does make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management. NC WQD's regulatory requirements parallel the federal regulations, which require operators of earth change activities to avoid, minimize, and mitigate adverse impacts to wetlands as a result of NPS pollution.[413]

Certification Requirements

NC WQD does not require contractors, BMP installers, or those responsible for inspecting BMPs to receive specialized training. NC WQD conducts site inspections at permitted earth change activities to ensure that NPS BMPs are installed and maintained correctly. NC WQD conducts compliance oversights of local government agencies that implement NPS pollution regulatory requirements, which helps to ensure that these sub-state agencies and the construction activities that fall under their jurisdiction are operating as intended.[414]

North Dakota

Outstanding Resource Waters

The NC DOH has not developed specific recommendations for the purpose of managing NPS pollution associated with earth change activities.

Wetlands

The NC DOH does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[415]

Certification Requirements

The NC DOH does not require contractors, BMP installers, or those responsible for inspecting BMPs to receive specialized training in their respective disciplines. The DOH may perform inspections at earth change activities and offer "technical support" in order to ensure that NPS BMPs are installed properly and are performing as intended.[416]

Oregon

Outstanding Resource Waters

OR DEQ has not developed specific NPS BMP requirements for earth change activities that discharge to 303(d) listed waterbodies or outstanding resource waters (ORWs).[417]

Wetlands

OR DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[418]

Certification Requirements

OR DEQ does not require contractors, BMP installers, or those responsible for inspecting BMPs to obtain specialized training. In an effort to ensure that NPS BMPs are installed and maintained correctly, OR DEQ inspects stormwater and NPS BMPs that are installed to meet a "TMDL NPS pollutant-specific load allocation".[419]

Vermont

Outstanding Resource Waters

VT DEQ has developed specific NPS BMP requirements that must be adopted at earth change activities that discharge to 303(d) listed waterbodies. NPS BMP requirements are developed and implemented so that the "risk category" of the 303(d) listed water body is not affected.[420]
If a project discharges to a stormwater-impaired water it affects its risk category.

Wetlands
VT DEQ does not make a distinction in its regulatory approach between wetlands and other waterbodies in regards to NPS pollution management.[421]

Certification Requirements
Operators, BMP installers, and BMP inspectors are not required to obtain certifications or specialized training in their respective disciplines. VT DEQ relies on site inspections to ensure that BMPs have been installed and are being maintained correctly.[422]

Virginia
Outstanding Resource Waters
Urban earth change activities that discharge to 303(d) listed waterbodies with TMDLs must install additional stormwater BMPs and erosion and sedimentation control BMPs to meet the applicable loading reductions specified by the TMDL. Although VA DCR does not specify which stormwater BMPs or NPS BMPs operators must install in these instances, VA DCR may increase the frequency of inspections at construction activities that discharge to impaired waterbodies and outstanding resource waters (ORWs).[423] VA DCR has not developed specific NPS pollution recommendations or requirements for agricultural earth change activities that discharge to 303(d) listed waterbodies or outstanding resource waters (ORWs).[424]

Wetlands
VA DCR does make a distinction in its approach between wetlands and other waterbodies in regards to NPS pollution management. VA DCR may designate protected areas upstream of wetlands where certain earth change activities are prohibited.[425]

Certification Requirements
Personnel that inspect NPS BMPs are required to obtain certification in BMP inspection. In addition, there must be one designated "responsible land disturber" for each construction activity. The responsible land disturber is ultimately responsible for the earth change activities that occur at a site, and this individual must be certified with VA DCR.[426]

VA DCR also seeks to ensure that NPS BMPs are installed and maintained properly by requiring inspections of construction activities immediately following BMP installation. Both local governmental agencies and state agencies perform site inspections. In addition, VA DCR requires operators to submit plans for maintaining NPS BMPs, which must be approved before stormwater permits can be issued. These are two methods that VA DCR relies upon to ensure that NPS BMPs are installed and maintained properly.[427]

3.3.3 Monitoring Requirements

U.S. EPA Region 3
U.S. EPA Region 3 recommends that operators monitor NPS pollution originating from urban earth change activities. The regional office does not however, recommend monitoring of NPS pollution associated with agricultural earth change activities.[428]

U.S. EPA Region 9

U.S. Region 9 recommends monitoring of NPS pollution associated with urban earth change activities. Monitoring is recommended in an effort to evaluate the effectiveness of BMPs, and operators are encouraged to monitor NPS pollution immediately before and after the installation of BMPs.[429] U.S. Region 9 does not recommend or require monitoring of NPS pollution associated with agricultural earth change activities.

Indiana

IDEM recommends that operators monitor NPS pollution associated with urban earth change activities. The survey respondent did not indicate which parameters the agency recommends operators monitor in NPS pollution.[430] IDEM recommends monitoring of on a monthly basis.[431]

IDEM does not recommend parameter-specific monitoring of NPS pollution associated with agricultural earth change activities.[432]

Iowa

The IA NRCS may require monitoring of NPS run-off associated with urban earth change activities that are regulated under the NPDES permitting program, but monitoring requirements are determined on a case-by-case basis. Otherwise, IA NRCS may require monitoring of NPS run-off for investigative purposes. Earth change activities that serve as "demonstration projects," may also be required to monitor NPS run-off.[433] Monitoring requirements are determined on an individual basis, and there is no standard set of parameters that operators may be required to monitor.[434] IA NRCS does not recommend or require monitoring of NPS pollution associated with agricultural earth change activities.[435]

Louisiana

The LA DEQ recommends that operators monitor NPS pollution associated with urban earth change activities, although LA DEQ does not specify the parameters that should be monitored. LA DEQ does not recommend/require monitoring of NPS pollution associated with agricultural earth change activities or forestry-related earth change activities.[436]

Maine

ME DEP does not require monitoring of NPS pollution associated with urban earth change activities or agricultural earth change activities.[437]

Michigan

MI DEQ does not require monitoring of NPS pollution associated with urban earth change activities or agricultural earth change activities.

Minnesota

Generally speaking, MN MPCA does not require operators to monitor NPS pollution for specific parameters. Construction activities that are awarded grants or loans for the purpose of NPS pollution management may be required to monitor NPS pollution. Furthermore, plans implemented to meet the load reductions specified by a TMDL may include monitoring of NPS pollution. In this instance, NPS pollution monitoring is performed in order to quantify the amount of "NPS pollution not covered under

the construction stormwater permit."[438] Although individual operators are not normally required to monitor NPS pollution, the Impaired Waters Program may monitor the water quality of receiving waters that are under TMDLs in order to evaluate the effectiveness of BMPs.[439]

Parameters That Must be Monitored

The parameters that must be monitored will depend on the TMDL(s) that has been developed for a particular receiving water body. Normally, the responsible party must monitor NPS pollution for fecal coliform, total suspended solids (TSS), pH, total phosphorus (TP), dissolved oxygen (DO), and one or more nitrogen parameters (ammonia, nitrate, nitrite, total nitrogen, etc.)[440] Depending on the circumstances, either the operator or the regulatory agency will be required to conduct monitoring.[441]

Missouri

MO DNR recommends that operators monitor NPS pollution associated with urban earth change activities. Monitoring for specific parameters is only recommended when there is an increased risk of a construction activity generating excessive NPS pollution. If the stormwater permitting authority recommends monitoring of NPS pollution associated with an urban earth change activity, the operator of the earth change activity may be asked to monitor water quality downstream of the construction activity.[442] Monitoring of NPS pollution is generally not required, but when it is required, the permitting authority will select the parameters to be monitored on a case-by-case basis.[443] In addition, the permitting authority will determine the frequency of monitoring, and whether the permitting authority or the operator of a construction activity will be responsible for monitoring NPS pollution.[444]

MO DNR does not recommend that operators monitor NPS pollution associated with agricultural earth change activities.[445]

Nevada

NV DEP does not require operators to monitor NPS pollution for specific parameters such as TSS, pH, oil and grease, etc.

New Jersey

NJ DEP requires the operators of remediation projects to monitor NPS pollution for specific parameters including TSS, pH, oil and grease, dissolved oxygen, "hazardous material," heavy metals, and hydrocarbons. The monitoring frequency is determined on a case-by-case basis, but operators are normally required to monitor NPS pollution every month or every four months (quarterly).[446]
NJ DEP does not recommend or require monitoring of NPS pollution associated with agricultural earth change activities.[447]

Parameters That Must be Monitored

TSS, pH, oil and grease, dissolved oxygen, "hazardous material," heavy metals, and hydrocarbons. Operators are required to monitor NPS pollution associated with earth change activities.

New Mexico
NM ED does not require or recommend that operators monitor NPS pollution for specific parameters such as TSS, pH, oil and grease, etc.[448] Parameter-specific monitoring of NPS pollution is not required in either agricultural or urban settings.

North Carolina
The NC DWQ does not require operators to monitor NPS pollution associated with urban earth change activities.

The NC DWQ does not require operators to monitor NPS pollution associated with agricultural earth change activities.[449]

North Dakota
The ND DOH does not require operators to monitor NPS pollution for parameters such as TSS, pH, oil and grease, etc.

Oregon
OR DEQ may recommend that operators monitor NPS pollution associated with earth change activities as part of their TMDL Implementation Plan.[450] Unless the operator of an earth change activity is implementing a TMDL Implementation Plan, monitoring of NPS pollution is not normally recommended.

Vermont
VT DEQ requires operators to monitor NPS pollution if the runoff is "visibly discolored." VT DEQ may require operators of both urban earth change and agricultural earth change activities to monitor NPS pollution if the runoff is discolored. Operators that observe discolored stormwater run-off are required to monitor NPS pollution for turbidity.[451]

Parameters That Must be Monitored
Turbidity
Operators are given the responsibility of monitoring NPS pollution.

Frequency of Monitoring
When monitoring is required, samples must be collected and analyzed after each storm event.

Virginia
When approved NPS BMPs are installed to control NPS pollution, VA DCR does not require parameter-specific monitoring of NPS pollution. When operators install alternative NPS BMPs that have not been proven effective in the state of Virginia, VA DCR may require those operators to monitor NPS pollution for total suspended solids (TSS) and total phosphorus. If VA DCR requires an operator to sample and analyze NPS pollution for TSS and total phosphorus, the sampling must occur after each storm event.[452]

VA DCR does not recommend or require that operators monitor NPS pollution associated with agricultural earth change activities.[453]

3.3.4 Compliance and Enforcement

U.S. EPA Region 3

Partnering With Other Agencies

U.S. EPA Region 3 delegates NPS program responsibilities to other state agencies and/or sub state agencies. U.S. EPA Region 3 is able to regulate these other agencies by conducting compliance oversight of their NPS pollution programs.[454]

Federal/State agencies

U.S. EPA Region 3 partners with many state and federal agencies in an effort to increase the effectiveness of the NPS program.

Indiana

Enforcement

The IDEM has the authority to issue fines or citations, violation notice letters, consent decrees or judgments, or consent orders in order to enforce compliance with nonpoint source pollution regulatory requirements.[455]

Partnering With Other Agencies

The IDEM is the primary state agency that administers the NPS pollution program, although IDEM does coordinate with sub-state agencies and "local programs" that enforce similar regulations. IDEM also works with sub-state agencies that have adopted "limited aspects" of the state's NPS regulations.[456]

Federal/State Agencies

In an effort to increase the effectiveness of the NPS pollution program, IDEM partners with the Natural Resources Conservation Service, Indiana Association of Soil and Water Conservation Districts, the Indiana Department of Natural Resources, and the Indiana Department of Agriculture.[457]

Iowa

Enforcement

The IA NRCS has the authority to issue fines or citations, violation notice letters, consent decrees or judgments, or consent orders in order to enforce compliance with nonpoint source pollution regulatory requirements.[458]

Partnering With Other Agencies

Three state and federal agencies help to administer the NPS pollution program including the Iowa IA NRCS, the Iowa Department of Agriculture, and the Environmental Protection Agency (EPA).[459]

Kansas

Enforcement

KDHEKS does have a NPS pollution management plan, but the agency does not have regulatory policies or requirements that pertain to NPS pollution management. Thus, KDHEKS does not necessarily issue fines or citations to enforce compliance with recommendations outlined in the NPS pollution management plan.[460]

Partnering With Other Agencies

KDHEKS has not delegated program responsibilities to other state agencies or sub-state jurisdictions. KDHEKs does however partner with many agencies to increase the overall effectiveness of the NPS pollution management plan. KDHEKs partners with the State Conservation Commission, the Natural Resources Conservation Service, University Research and Extension Programs, Conservation Districts, Resource Conservation Districts, Nonprofit Organizations, Watershed Districts, the Kansas Water Office.[461]

Louisiana

Enforcement

LA DEQ may enforce compliance by issuing fines or citations or by sending violation notice letters to operators that are not complying with the recommendations/requirements of the NPS pollution program.[462]

Partnering With Other Agencies

LA DEQ delegates program responsibilities to other state and sub-state agencies including city and county governments. LA DEQ provides training to personnel that are involved in administering the program, and also performs inspections to ensure that these agencies are fulfilling their responsibilities.[463]

Federal/State agencies

LA DEQ partners with many state and sub-state agencies to increase the effectiveness of the NPS management program. LA DEQ partners with the Louisiana Department of Agriculture and Forestry, the Louisiana Department of Natural Resources, the Louisiana Department of Wildlife and Fisheries, the Louisiana Department of Health and Hospitals, and many local governmental agencies.[464]

Michigan

Enforcement

MI DEQ may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. MI DEQ may also send violation notice letters to permittees that are not complying with the requirements of the agency's NPS pollution program.

Partnering With Other Agencies

MI DEQ delegates program responsibilities to other state and sub-state jurisdictions, which MI DEQ regulates through periodic audits. In addition, MI DEQ partners with the U.S. Geological Survey, the United States Department of Agriculture Natural Resources Conservation Service, the Michigan Department of Natural Resources, and various other MI DEQ programs to increase the effectiveness of the NPS program.[465]

Minnesota

Enforcement

Enforcement measures may be employed when NPS pollution contributes to violation of certain "environmental rules" such as the "nuisance conditions" rule. MN MPCA may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. MN MPCA may also send violation notice letters to operators that are in violation of one or more "environmental rules." [466]

Partnering With Other Agencies

There are several MN MPCA programs that address NPS pollution management, including the Minnesota Clean Water Partnership, the Minnesota Clean Water Legacy, the Impaired Waters Program and Section 319 Programs Yes.[467] [468] MN MPCA has not delegated program responsibilities to other state agencies or sub-state jurisdictions. Many state agencies and sub state jurisdictions, including county governments, soil and water conservation districts, watershed organizations, private citizens, and private organizations, may apply for grants or loans to implement NPS pollution management plans.[469]

Federal/State agencies

MN MPCA works with agricultural agencies such as the Minnesota Department of Agriculture, the United States Department of Agriculture (USDA), and the Natural Resources Conservation Council to increase the effectiveness of the NPS program. MN MPCA also works with the non-governmental organizations such as the Corn Growers Association to evaluate the effectiveness of BMPs.[470]

Missouri

Enforcement

The MO DNR has the authority to issue fines or citations, violation notice letters, consent decrees or judgments, or consent orders in order to enforce compliance with nonpoint source pollution regulatory requirements. MO DNR will only enforce compliance with NPS pollution regulatory requirements at earth change activities that are permitted under the NPDES permitting program or a related permitting program.[471]

Partnering With Other Agencies

MO DNR is the primary state agency that administers the NPS pollution program. MO DNR does however partner with many other agencies to increase the effectiveness of the NPS program, including the U.S. EPA, the Natural Resources Conservation Service (IA NRCS), University Extension Offices, Local watershed groups, the Missouri Department of Health, the Missouri Department of Conservation, and local government agencies.[472]

New Jersey

Enforcement

NJ DEP may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. NJ DEP may also send violation notice letters or issue stop work orders to operators that are not complying with the recommendations/requirements of the NPS pollution plan.[473]

Partnering With Other Agencies

NJ DEP has delegated program responsibilities to the State Soil Conservation Committee, which is composed of representatives from the New Jersey Department of Transportation, the New Jersey Department of Agriculture, and the New Jersey Department of Environmental Protection.[474]

Federal/State agencies

NJ DEP partners with many state and sub-state agencies to increase the effectiveness of the NPS pollution program, including the New Jersey Department of Agriculture, the New Jersey Department of

Transportation, the League of Municipalities, the New Jersey Builders Association, the Farm Bureau, and the New Jersey Department of Community Affairs.[475]

New Mexico

Enforcement

The U.S. EPA administers the NPDES program in New Mexico, and NM ED reports problems of non-compliance to the U.S. EPA or the United States Army Corps of Engineers.[476]

Partnering With Other Agencies

NM ED partners with many state and sub-state agencies to increase the effectiveness of the NPS pollution program including the United States Forest Service, USDI Bureau of Land Management, the New Mexico Energy Minerals and Natural Resources Department, Soil and Water Conservation Districts, Resource Conservation and Development Councils, local governments, non-profit organizations, and other state agencies.[477]

Nevada

Enforcement

NV DEP may enforce compliance by issuing fines or citations. NV DEP may also send violation notice letters to operators that are not complying with NPS pollution recommendations/requirements.[478]

Partnering With Other Agencies

NV DEP has delegated NPS program responsibilities to other state and sub-state agencies including city and county governments. NV DEP regulates these agencies through bi-yearly oversights of their NPS pollution programs and activities.[479]

Federal/State agencies

NV DEP partners with many organizations to increase the effectiveness of the NPS pollution program.

North Carolina

Enforcement

The NC WQD may enforce compliance by issuing fines or citations, consent decrees or judgments, or consent orders. NC WQD also sends violation letters to operators that are in violation of the NPS pollution regulatory requirements.[480]

Partnering With Other Agencies

The Division of Land Resources, Land Quality Section is primarily responsible for the management of erosion and sedimentation associated with urban earth change activities. The Division of Forest Resources is primarily responsible for implementing NPS pollution regulatory requirements that pertain to forestry-related earth change activities. The Division of Water Quality is responsible for managing post-construction NPS pollution.[481]

NC WQD has delegated responsibility to both county governments and municipalities to administer the NPS pollution program. NC WQD has statutory authority and can require both municipalities and

counties to implement post-construction stormwater programs. Municipalities and cities can choose to implement erosion and sedimentation BMPs on a voluntary basis.[482]

Federal/State agencies

The NC WQD partners with many agencies to increase the effectiveness of the NPS pollution program. NC WQD partners with the Division of Soil and Water Conservation, the Division of Forest Resources, the Division of Land Resources, Land Quality Section, the Division of Environmental Health, the Division of Waste Management, the Ecosystem Enhancement Program, the Office of Environmental Education, and the Department of Agriculture and Consumer Services.[483]

North Dakota

Enforcement

The ND DOH is the only agency that directly administers the NPS pollution program.

Partnering With Other Agencies

The ND DOH does partner with many agencies to increase the effectiveness of the NPS pollution program including Soil Conservation Districts, Water Resource Districts, the NDSU Extension Service, the Natural Resources Conservation Service (IA NRCS), the North Dakota Department of Agriculture, and Resource Conservation & Development Councils.[484]

Oregon

Enforcement

OR DEQ is able to "indirectly" enforce compliance with NPS requirements/recommendations through enforcement of in-stream water quality standards.[485]

Partnering With Other Agencies

OR DEQ has delegated program responsibilities to other state agencies and sub-state agencies.

Federal/State agencies

Many federal and state rules, regulations, and programs support OR DEQ's NPS program. Some of the supporting rules and programs include the CZARA (Coastal Zone Management Act Reauthorization Amendments of 1990) Section 6217 Costal NPS Control Program, the TMDL rule, the National Estuary Program, the Forest Practices ACT, the Oregon Plan for Salmon and Watersheds, the Agricultural Water Quality Act, the State Land Use Planning Program, and drinking water and groundwater protection programs.[486]

The OR DEQ NPS program was designed to "coordinate with or provide direct assistance to other water quality protection or natural resource management programs at OR DEQ and in other local, state, and federal agencies." Some of the programs that the OR DEQ NPS program partners with include programs involved in the "management or regulation of forestry, agriculture, grazing, transportation, recreation, hydro-modification, marinas, urban development, land use planning, fish and wildlife habitat, riparian and wetlands protection/restorat6ion, public education, water resources, and other activities that affect the quality of the state's waters."[487]

Virginia

Enforcement

VA DCR may enforce permit compliance by issuing fines or citations, consent decrees or judgments, or stop work orders. In addition, VA DCR may send violation notice letters to operators that violate the regulatory requirements specified in the NPS pollution plan.[488]

Partnering With Other Agencies

VA DCR has delegated NPS pollution program responsibilities to other state agencies and sub-state jurisdictions. VA DCR regulates these other agencies through "periodic reviews of locally run programs." If a locally-run program is failing to uphold the regulatory requirements specified in the state-wide NPS pollution plan, VA DCR may require the locally-run program to sign a "corrective action agreement," which is enforced by the "authority to issue fines."[489]

Federal/State agencies

VA DCR does not partner with other agencies to increase the overall effectiveness of the NPS pollution program.[490]

Vermont

Enforcement

VT DEQ may enforce compliance by issuing fines or citations, consent degrees or judgments, or consent orders. DEQ may also send violation notice letters to operators that are not complying with the recommendations/requirements of the NPS pollution program.[491]

Partnering With Other Agencies

DEQ does not delegate NPS program responsibilities to other agencies, but DEQ does partner with the U.S. EPA and the Natural Resources Conservation Service to increase the effectiveness of the NPS program.[492]

[1] Construction Stormwater Survey. EPA Region 9 Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding EPA Region 9 Office's construction stormwater permit requirements.
[2] Construction Stormwater Survey. Connecticut Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Connecticut's construction stormwater permit requirements.
[3] Construction Stormwater Survey. Florida Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Florida's construction stormwater permit requirements.
[4] Construction Stormwater Survey. Kansas Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Kansas's construction stormwater permit requirements.
[5] Construction Stormwater Survey. Massachusetts Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Massachusetts' construction stormwater permit requirements.
[6] Construction Stormwater Survey. Michigan Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Michigan's construction stormwater permit requirements.
[7] Construction Stormwater Survey. Montana Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Montana's construction stormwater permit requirements.
[8] Construction Stormwater Survey. North Carolina Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding North Carolina's construction stormwater permit requirements.
[9] Construction Stormwater Survey. North Dakota Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding North Dakota's construction stormwater permit requirements.
[10] Construction Stormwater Survey. Ohio Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Ohio's construction stormwater permit requirements.
[11] Construction Stormwater Survey. Oregon Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Oregon's construction stormwater permit requirements.
[12] Construction Stormwater Survey. Texas Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Texas' construction stormwater permit requirements.
[13] Construction Stormwater Survey. Utah Response. July 24, 2009. Unless otherwise indicated, this reference applies to all information regarding Utah's construction stormwater permit requirements.
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