UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
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FACT SHEET

DRAFT GENERAL PERMITS FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

NPDES PERMIT NUMBERS:

NHR041000 – Traditional cities and towns

NHR042000 – Non-traditional state, federal, county and other publicly owned systems

NHR043000 – Non-traditional transportation systems

PUBLIC COMMENT PERIOD: February 12, 2013 – April 15, 2013

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SECTION A

1. Proposed Action

The U.S. Environmental Protection Agency (EPA) is proposing to reissue three National Pollutant Discharge Elimination System (NPDES) general permits for the discharge of stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) to waters within the State of New Hampshire. Throughout this document the terms "this permit" and "the permit" will refer to all three general permits.

A previous draft reissuance of this permit was placed on public notice in December 2008. EPA has reviewed the comments received on the draft permit and has decided, in its discretion, to issue a new Draft Permit pursuant to 40 CFR §124.6. The new Draft Permit includes changes made in response to public comments on the first draft permit; changes made to provide for the changed circumstances since issuance of the first draft permit (e.g. newly approved TMDLs and additional impaired waters listings); and coverage for MS4s that became subject to NPDES permit requirements with the issuance of updated urbanized area delineations based on the results of the 2010 Census.

2. Type of Facility

This permit is available to eligible MS4 operators seeking authorization to discharge stormwater and allowable non-stormwater from small MS4s. A small municipal separate storm sewer system means all separate storm sewers that are:

> (1) Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes including special districts under State law such as a sewer, flood control district or drainage district, or similar entity or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of United States.
>
> (2) Not defined as "large" or "medium" municipal separate storm sewer systems pursuant to 40 CFR § 122.26(b)(4) or (b)(7) or designated under 40 CFR § 122.26(a)(1)(v).

> (3) This term includes systems similar to separate storm sewer systems in municipalities, such as military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings

40 CFR § 122.26(b)(16). A municipal separate storm sewer system means:

> A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels or storm drains):
>
> (1) Owned or operated by [a municipality];
>
> (2) Designed or used for collection or conveying stormwater; and
>
> (3) Which is not part of a Publicly Owned Treatment Works (POTW).

40 CFR § 122.26(b)(8).

This permit covers small MS4 operators located either fully or partially within an urbanized area as determined by the 2010 Decennial Census by the Bureau of Census, or located in a geographic area designated by EPA as requiring a permit, within the State of New Hampshire. The 2003 permit and 2008 draft permit was available to those permittees located in Indian Country within Connecticut and Rhode Island as well as Federal MS4 operators within an urbanized area or area designated by EPA within the state of Vermont. There are currently no permittees in Indian Country within Connecticut or Rhode Island and no federal MS4 operators within Vermont eligible for this permit. Therefore, the new Draft Permit only covers those MS4 operators located in the State of New Hampshire. MS4 operators in Indian Country in Connecticut or Rhode Island, well as Federal MS4 operators within an urbanized area or area designated by EPA within the state of Vermont shall seek NPDES coverage for discharges from their MS4 in accordance with 40 CFR § 122.33(b)(2).

3. Type and Quantity of Discharge

This permit covers the discharge of stormwater from eligible small MS4s. Non-stormwater discharges are not covered under this permit unless such non-stormwater discharges are authorized under a separate NPDES permit or a non-stormwater discharge listed in Part 1.4. Other limitations on coverage are set forth in Draft Permit Part 1.3.

4. Basis for Draft Permit Conditions

The 2008 Fact Sheet for the previous draft permit[1] provided a comprehensive summary of the basis for the draft permit conditions including the applicable statutory and regulatory authority and is

[1] Available at http://www.epa.gov/region1/npdes/stormwater/nh/Fact-Sheet-NH-Small-MS4.pdf.

included as Attachment A to this Fact Sheet. To avoid repetition, this Fact Sheet focuses on changes made between the 2008 draft permit and the new Draft Permit, particularly in the context of the public comments received on the 2008 draft. A detailed statement of the comments received, changes made in response to the comments, other changes and explanation of the changes is set forth in Section B of this Fact Sheet.

In addition, there were four specific developments that occurred since the issuance of the 2008 draft that resulted in changes to this Draft Permit. These are (1) the publication of updated urbanized area delineations in connection with the 2010 census, including expanded urbanized area in New Hampshire; (2) the approval of additional Total Maximum Daily Loads (TMDLs) for chlorides, phosphorus, and bacteria in New Hampshire; (3) the Clean Water Act § 303(d) listing and associated research and analysis of nitrogen-impaired waters in the Great Bay watershed; and (4) a realized need for more prescriptive requirements for discharges to waterbodies impaired for pollutants found in stormwater where there is no approved TMDL.

a. Updated Urbanized Area Delineation

In March 2012 the U.S. Census Bureau released updated urbanized area delineations based on 2010 census data. This impacts the scope of coverage of the Small MS4 General Permit, as the governing regulations require permit coverage for small MS4s "located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census." 40 CFR § 122.32(a)(1). The 2008 draft permit contained similar language at Part 1.2.1 defining eligibility for permit coverage for small MS4s "[l]ocated either fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census (the 2000 Census)."

In light of the updated urbanized area delineation, EPA has reviewed the newly released urbanized areas and has produced updated urbanized area maps for each of the communities located either fully or partially within the urbanized area in New Hampshire. The new urbanized area includes areas within fifteen (15) communities in New Hampshire that were outside the urbanized area under the 2000 delineation. These communities are shown in Table 1. Communities named in Table 1 may be eligible for a waiver from permit requirements under 40 CFR § 122.32(d). The revised areas are shown on the urbanized area maps available on EPA's website.

Table 1

Town	Population within urbanized area
Newmarket NH	7465
Stratham NH	5352
Raymond NH	4611
Pembroke NH	3940
Allenstown NH	2274
Wilton NH	1197
Fremont NH	665
Epping NH	601
Newfields NH	596
Barrington NH	159

Town	Population within urbanized area
Mont Vernon NH	157
South Hampton NH	17
Candia NH	15
Bow NH	1
Lyndeborough NH	0

For newly covered communities, the 2008 draft contained a list of deadlines that would be extended for entities that were not covered under the May 1, 2003 small MS4 general permit ("MS4-2003"). 2008 draft, Part 1.10.3. EPA has revised and expanded that list in the New Draft Permit to address these new permittees and the revised permit requirements.

EPA specifically seeks comments on the application of the new Draft Permit requirements and extended deadlines applicable to small MS4s that are newly covered due to the expansion of the urbanized area in New Hampshire.

b. New TMDLs

Since the issuance of the 2008 draft permit NHDES has published, and EPA has approved, several new TMDLs that include Waste Load Allocations (WLAs) for MS4 discharges. These are: (1) the Statewide Bacteria TMDL; (2) the Beach Bacteria TMDL; (3) four TMDLs for chloride-impaired waters; and (4) Lake Nutrient TMDLs. EPA's permitting regulations require that NPDES permits contain water quality based effluent limits that are "consistent with the assumptions and requirements of any available wasteload allocation for the discharge". 40 CFR § 122.44(d)(1)(vii)(B); see also EPA, *Draft Memorandum, Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Waste Load Allocations (WLAs) for Storm Water Sources and NPDES Permits Based on Those WLAs"* (2010). Therefore, EPA has included in the New Draft Permit specific conditions consistent with the WLAs in the newly approved TMDLs, as described below and in Part B of this Fact Sheet in the response to comment 2.2.1.a.

Lake Phosphorus TMDL Requirements

On May 11, 2011, EPA approved TMDLs for phosphorus discharges to 24 lakes and ponds (referred to as "Phosphorus TMDLs" or "The Reports") located within the state of New Hampshire.

Lake and Pond Phosphorus TMDL Summary[2]

The phosphorus TMDLs address severe water quality impairments resulting from the excessive growth of algae caused by an over-abundance of phosphorus in discharges to the 24 lakes and ponds. All 24 lakes and ponds are classified as Class B waters (Phosphorus TMDLs Sections 2.2).

[2] This summary is provided for background purposes only to assist in understanding the permit provisions that EPA has drafted to meet TMDL requirements. The TMDL itself has already been approved is not subject to public comment through this process.

The Reports describe the pollutant of concern, total phosphorus (TP), and the phosphorus related impairments from which the water bodies suffer, such as excess chlorophyll *a*, hepatotoxic cyanobacteria, dissolved oxygen concentration, and dissolved oxygen percent saturation (Phosphorus TMDLs Sections 2.5). NHDES's water quality standards and policies specify the following goals for Class B waters, including goals for dissolved oxygen (DO) and chlorophyll *a* (Phosphorus TMDLs Sections 2.3):

- Env-Wq 1703.14(b): Class B waters shall contain no phosphorus in such concentrations that would impair any existing or designated uses, unless naturally occurring.
- Env-Wq 1703.14(c): Existing discharges containing either phosphorus or nitrogen that encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.
- Env-Wq 1703.14(d)-(e): There shall be no new or increased discharges of phosphorus into lakes and ponds, and there shall be no new or increased discharges containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes or ponds.
- Env-Wq 1703.07 (b): Except as naturally occurs , Class B waters shall have a DO content of at least 75% of saturation, based on a daily mean, and an instantaneous minimum DO concentration of at least 5 mg/L.
- Env-Wq 1703.07(d): Unless naturally occurring surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments and reservoirs or within the epilimnion shall contain a DO content of at least 75 percent saturation, based on a daily average and an instantaneous minimum DO content of at least 5 mg/L. Unless naturally occurring, the DO content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.
- The NH DES policy for interim nutrient threshold for primary contact recreation (i.e. swimming) in NH lakes is 15 µg/L chl-*a*. Lakes were also listed as impaired for swimming if surface blooms (or "scums") of cyanobacteria were present. A lake was listed even if scums were present only along a downwind shore.

New Hampshire currently has no numeric criteria for phosphorus in lakes and ponds. Consequently, NH DES derived numeric TP targets of 12 ug/L, using procedures described in Phosphorus TMDLs Sections 2.6 (and detailed in Appendix A to each Phosphorus TMDL) that will allow the water bodies to attain their designated uses (described in Phosphorus TMDLs Section 2.2). The targets are based on an analysis of phosphorus conditions in both impaired and unimpaired lakes in the state, and are supported by additional analyses of nutrient levels for commonly recognized trophic levels, and by the use of probabilistic equations to establish targets that minimize the risk of impaired conditions.

Current baseline phosphorus loads (in kg/yr) to the lakes and ponds were established using a calibrated watershed loading model (Phosphorus TMDLs Sections 3.0), and included specification of the loads from each lake or pond's contributing subwatersheds and tributaries, from the direct drainage to the water bodies, and from precipitation and baseflow (Phosphorus TMDLs Sections 3.1-3.4). The ENSR-LRM methodology is a land use export coefficient model developed by AECOM for use in New England and modified for New Hampshire lakes (Phosphorus TMDLs Section 3.0). The model assigned export coefficients of Nitrogen and Phosphorus in kilograms per

hectare per year (kg/ha/year) to each land use type to determine how much of each nutrient is generated by each designated land use in each watershed.

The baseline loading numbers and the ENSR-LRM model was then used to develop WLAs which allocate the allowable loads for the water bodies amongst the nutrient point sources, including direct drainage, the tributary watersheds, internal cycling, septic systems, and waterfowl to achieve the target concentrations of 12 ug/1 in each lake or pond.

Stormwater Waste Load Allocation

Regulations governing issuance of NPDES permits at 40 CFR §122.4(d) state that a permit may not be issued where its conditions do not ensure compliance with the applicable water quality requirements of affected states. Regulations at 40 CFR §122.44(d)(1)(vii)(B) also require that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, be consistent with the assumptions and requirements of any available wasteload allocation for the discharge. Consistent with those requirements, the draft permit requires a relative percent reduction in annual phosphorus loading from regulated MS4 drainage areas consistent with the applicable WLAs. NH DES has chosen to allocate unregulated stormwater and other nonpoint source runoff to the waste load allocations (WLAs) applicable to regulated stormwater, which EPA has said is an acceptable approach[3]. The allocations generally call for significant reductions from the contributing tributary watersheds, and often from direct drainage. The WLA for all watershed sources, including stormwater outfalls, direct drainage and non-point sources were given a single WLA expressed as a percent reduction needed in phosphorus loading from the watershed (Phosphorus TMDLs Section 5.1). This is a relative reduction needed from all watershed sources from a baseline phosphorus loading estimate. The WLA, in the form of a relative percent reduction in watershed load, can reasonably be applied to both point and non-point sources within the watershed and therefore an equal percent reduction in phosphorus loads from each source is assumed in order to be consistent with the assumptions of the TMDLs. A permittee that operates an MS4 within the watershed boundaries of the respective impaired lake or pond is thus required to achieve the relative phosphorus reduction from the baseline phosphorus loading from any MS4 area draining to the impaired waterbody (both direct stormwater drainage, and stormwater discharge from outfalls and their contributing area).

Appendix F – Table F-3 of the Draft Permit contains a listing of municipalities subject to the TMDLs and the required phosphorus load reduction for each municipality represented in relative percent reduction. Table F-3 in Appendix F also contains a baseline phosphorus load from watershed sources as reported by the TMDLs along with a mass/yr reduction of phosphorus needed from watershed sources in kg/yr. With respect to the Draft Permit's water-quality based requirements, Section 2.2.1 and Appendix F of the Draft Permit require the permittee to develop a Phosphorus Control Plan that, when implemented, will satisfy its Phosphorus Reduction Requirement through any combination of implementing enhanced non-structural BMPs and implementing structural BMPs.

Phosphorus Control Plan (PCP)

[3] EPA Approval of 24 Lake Phosphorus TMDLs, May 11, 2011

The PCP is a multi-step process that includes the implementation of non-structural and structural BMPs to achieve the relative reduction in phosphorus loading from a baseline phosphorus loading estimate required by the Draft Permit to support achievement of the WLA in the approved TMDLs. The Draft Permit requires the permittee to develop and implement the PCP as soon as possible with completion within the permit term. EPA and NHDES are aware that the reduction of stormwater pollutants from MS4s is a comprehensive and challenging undertaking for permittees. The steps in this process may include establishing new funding sources, obtaining funding, analyses of site suitability for structural and non-structural BMPs, coordinating work on MS4 properties, and/or the development of new ordinances or other regulatory mechanisms. Implementation in some communities could also involve coordination with private property owners. At present, stormwater management often focuses on incorporating controls on new development and applying very minimal non-structural controls to regulated watershed areas. In contrast, applying stormwater structural controls to existing development is done mostly on a "demonstration" basis. Permittees may need to shift from the "cookbook" stormwater standards approach to a more expansive and innovative approach needed for developing effective stormwater management plans for existing development (retrofit plans).

As noted above, the PCP may include both non-structural and structural BMPs. Non-structural BMPs are often considerably less expensive than structural retrofits in urban areas. Through extensive work in the Charles River Watershed, EPA has estimated that the average cost to install structural retrofits to remove excess phosphorus from stormwater is approximately $4,000 to $32,000 per pound of removed phosphorus. These costs fluctuate based on a number of factors specific to the watershed in which the BMP is being placed and the type of BMP installed. Through this work, EPA has realized the potential cost savings in careful planning and optimization of a PCP plan; a properly optimized plan can save the permittee as much as 50% in the total cost of implementation. Developing more cost effective plans will accelerate the rate of achieving phosphorus reductions because of lower unit cost factors (more phosphorus removed per dollar spent), and avoid implementing the larger more costly controls. With this in mind, EPA and NHDES acknowledge that in some cases these actions are likely to require multiple years for permittees to implement, particularly where these steps require municipal legislative approvals through town meeting or city councils and extensive retrofit implementation to treat runoff from impervious areas. Due to the complexities of development and implementation of a system wide PCP, EPA believes that in some cases municipalities may need more than 1 permit term to meet the given WLA. However, current New Hampshire Water Quality Standards do not permit the use of compliance schedules in permits[4]; therefore the Draft Permit requires full implementation of the PCP as soon as possible but no later than the end of the permit term.

Phosphorus Loading Rates

The urban and suburban landscape contains a variety of phosphorus sources. These include dust and dirt, atmospheric deposition, decaying organic matter (such as leaf litter and grass clippings),

[4] Compliance schedules in NPDES permits (as opposed to administrative compliance orders) are permissible only where authorized in a state's water quality standards. *See In re Star-Kist Caribe, Inc.*, 3 E.A.D. 172, 175 (Adm'r 1990), modification denied, 4 E.A.D. 33, 34 (EAB 1992). New Hampshire's water quality standards do not provide for compliance schedules

fertilizers, exhaust from internal combustion engines, detergents, and pet waste. Intensive uses, including high traffic volume (particularly of trucks and busses), increase pollutant loading to the impervious surfaces, including surfaces adjacent to roadways, loading areas and parking lots.

Impervious surfaces collect phosphorus deposited on them from these sources. Wind, runoff from rain and snowmelt, landscaping and other human activities and natural mechanisms mobilize and then convey phosphorus from impervious surfaces to waters such as the applicable TMDL lakes and ponds.

Numerous scientific studies document that impervious cover both increases the volume of rainfall that becomes runoff and amplifies the loads of pollutants flowing to surface waters. There are several reasons for this: 1) rain falling on impervious cover runs off without infiltrating into the ground, thus creating a higher volume of runoff per unit area; 2) unlike pervious areas that trap and filter pollutants through soils and surface retention, impervious areas allow greater amounts of pollutants to be carried away by runoff; and 3) pollutants such as phosphorus on impervious surfaces are particularly susceptible to transport by runoff because of their tendency to adhere to very small particles, which are easily washed off hard surfaces by rainfall. These small particles (< 100 microns) account for much of the phosphorus stormwater load that discharges to receiving waters. These three factors operating simultaneously dramatically increase phosphorus loadings from impervious surfaces.

The phosphorus load export rates (PLERs) presented in Table 1-1 of Attachment 1 to Appendix F represent estimates of the annual phosphorus load that would be delivered from impervious and pervious surfaces for six (6) land use categories. These export rates estimate the relative magnitude of phosphorus loading from impervious and pervious surface for each of the various land use groupings. Separate PLERs for impervious and pervious surface are provided to improve the accounting of phosphorus reduction credits for individual BMPs. In many cases BMPs are targeted to address runoff from primarily impervious surfaces. As indicated in Table 1-1 of Attachment 1 to Appendix F, the PLERs for impervious surface for the various land use groupings are notably higher than their corresponding pervious PLERs. This is primarily due to the fact that impervious surfaces generate greater volumes of runoff than pervious surfaces and because phosphorus is more readily washed off of impervious surface than pervious surfaces.

The export rates presented in Table 1-1 of Attachment 1 to Appendix F have been developed based on extensive analysis of the following types of information[5]:

- Stormwater quality data from the National Stormwater Quality Database (NSQD, 2008) for rainfall Regions 1 and 2;
- Various stormwater quality datasets collected in New England (many sources);
- Various stormwater/watershed modeling efforts including the following pollutant loading analyses:
    - *Streamflow, water quality, and contaminant loads in the Lower Charles River Watershed, Massachusetts,* 1999-2000. USGS, WRIR 02-4137 Breault, R.F., J.R. Sorenson, and P.K. Weiskel. 2002

[5] All documents referenced are available for review as part of the administrative record for this draft permit.

  - *Calibration of Phosphorus Export Coefficients for Total Maximum Daily Loads of Massachusetts Lakes*, Lake and Reservoir Management**,** Mattson and Isaac, 1999
  - *Optimal Stormwater Management Plan Alternatives: A Demonstration Project in Three Upper Charles River Communities, Tetra Tech, Inc.*, December 2009;
  - *Updating the Lake Champlain Basin Land Use Data to Improve Prediction of Phosphorus Loading,*Troy, et al., 2007
  - *The Final Phosphorus TMDL Reports for New Hampshire Lakes,* NHDES, 2011
- Literature values from various sources as reported in the *Fundamentals of Urban Runoff Management*, Shaver, et al., 2007 and the *Draft Chesapeake Stormwater Network (CSN) Technical Bulletin No. 9, Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed, Version 1.0*, Schueler, 2001.
- Data collected by the USGS in the study of *Potential Reductions of Phosphorus in Urban Watershed using a High-Efficiency Street-Cleaning Program, Cambridge, Massachusetts*, J.R. Sorenson, 2011.
- Results of long-term (e.g., 5 years) continuous hydrologic model simulations using the Stormwater Management Model (SWMM) and P8 Model to develop Hydrologic Response Units (HRUs) for impervious and various pervious land surfaces (e.g., hydrological soil groups A, B, C and D) representative of local climatic conditions (hourly precipitation and daily temperature).

The PLERs proposed in the draft permit were developed based on a weight of evidence approach summarized below.

- Representative stormwater quality event mean concentration (EMC) data were compiled and reviewed to determine phosphorus characteristics and relative differences among land use source types. This process was used to identify appropriate groupings of land use categories for characterizing phosphorus loadings and to determine the relative strength of the phosphorus loading among the various land use groups.
- For certain categories such as forested, agricultural sources and rural/open space type sources, current EMC data are limited and estimates of PLERs are based both directly and indirectly on reported values in published papers and reports. For example, the PLERs for agriculture source categories were taken directly from the final TMDL report for the New Hampshire Lakes. In contrast, the PLERs for Low density residential, Highway and Forested are based in part on reported "composite" PLERs values (i.e., represent combined influence of impervious and pervious surfaces) and subsequent HRU modeling to estimate the individual PLERs for impervious and pervious surface within that source category. For example, for composite PLER for low density residential (LDR) reported by Mattson and Isaac is 0.27 lbs/acre/year. Continuous simulation hydrologic modeling (SWMM) using regional climatic data, typical % impervious associated with LDR and consideration of representative stormwater phosphorus concentrations was conducted to estimate PLERs of 0.9 lbs/acre/year for impervious surfaces and 0.2, 0.4 and 0.7 lbs/acre/year for pervious areas with hydrologic soils A/B, C and D, respectively.
- Various pollutant loading studies were evaluated and HRU modeling conducted to assist in developing the relationship between source category phosphorus EMC data and annual loading rates. The USGS pollutant load study for the Lower Charles River, MA

(Breault, et. al, 2002) provides very relevant information in that it included extensive and flow and quality monitoring data for each of three land use categories, medium density residential, multi -family residential and commercial. Additionally, the USGS conducted detailed SWMM modeling of these drainages and estimated annual phosphorus loads for the year-long monitoring period. EPA used HRU modeling results in combination with the USGS data and the robust NSQD dataset to estimate impervious and pervious PLERs for these land use groupings.

- For all source categories included in Table 1-1 of Attachment 1 to Appendix F, EPA cross-checked various sources of information to ensure that the proposed PLERs are reasonable agreement with other reported information related to phosphorus loading.

Baseline Phosphorus Loading

The permittee may choose the area in which the permittee will be implementing the PCP and calculate a baseline phosphorus loading rate from that land area (see Attachment 1 to Appendix F for calculations). The Draft Permit requires the permittee to reduce the phosphorus loading rate from the regulated area (urbanized area based on the 2010 census) that is within municipal boundaries[6]. In some cases, the watershed may only contain a small amount of regulated area and the permittee may choose to recalculate the baseline phosphorus load and the Phosphorus Reduction Requirement required by the Draft Permit. However, this choice limits the land area that credits can be counted towards meeting the Phosphorus Reduction Requirement (only BMPs installed or implemented in the regulated area will count towards meeting the permittees' Phosphorus Reduction Requirement). While not required, the permittee could instead choose (for economical or environmental reasons) to implement the PCP watershed wide within its municipal boundary to provide more flexibility in implementation and location selection of BMPs in order to optimize potential reduction credits.

In order to determine the overall level of control needed and to calculate anticipated phosphorus load reduction associated with planned BMPs, it is first necessary to estimate annual phosphorus loading from the area in which the permittee has chosen to implement its PCP. The Permittee is given four options to estimate the annual baseline phosphorus load: (1) implement the PCP watershed wide within its municipal boundaries and use the baseline watershed annual load provided in Table F-3 in Appendix F; (2) implement the PCP in MS4 regulated areas only and calculate the baseline phosphorus load from the regulated area using the land use within the MS4 regulated area and the associated land-use based PLERs from the applicable final TMDL report; (3) implement the PCP watershed wide within its municipal boundaries and recalculate the baseline annual phosphorus load using the alternative methodology provided in Attachment 1 to Appendix F in which more specific PLERs are provided to specifically characterize annual phosphorus loads from impervious and pervious areas separately; or (4) implement the PCP in MS4 regulated areas only and calculate the baseline phosphorus load using the alternative methodology provided in Attachment 1 to Appendix F. Each TMDL report provides land use phosphorus export rates used to calculate the baseline phosphorus loading to the respective waterbody (Appendix B of the

[6] EPA notes that the Phosphorus TMDLs calculated the percent of the land are that was regulated urbanized MS4 area; however these percentages cannot be applied to the overall watershed load to accurately characterize the load coming from the MS4 area alone.

Phosphorus TMDLs). These are composite phosphorus export rates for the land use as a whole and do not differentiate between phosphorus export rates from pervious and impervious areas. While it is scientifically sound to use composite export rates in a watershed analysis, EPA believes the differentiation of export rates from pervious and impervious area is preferable when optimizing a retrofit plan watershed wide. The estimates of annual phosphorus load and load reductions by BMPs will be used by the permittee to demonstrate compliance with the relative phosphorus load reduction requirement of the permit (i.e., WLA of 52% of the watershed area phosphorus load). The estimates will also allow EPA, NHDES and the municipality to track progress towards achieving the overall relative phosphorus load reductions determined necessary for the municipality to attain its phosphorus reduction requirements consistent with the waste load allocation under the TMDL.

Non-Structural Stormwater Phosphorus BMPs

The Permittee may satisfy the Phosphorus Reduction Requirement in whole or in part by implementing enhanced non-structural BMPs. The enhanced non-structural BMPs are generally of the same kind as the baseline performance BMPs; however, they generally represent a more aggressive degree of control than those defined in Part 2.3 of the Draft Permit.

Regular sweeping, catch basin cleaning, reduced fertilizer use and proper management of landscaping wastes are addressed minimally in Part 2.3 of the Draft Permit. However, the implementation of these controls will determine whether the permittee is allowed to claim credit toward satisfying its phosphorus reduction requirement for the controls. Attachment 2 to Appendix F provides default removal credit factors and acceptable methodologies for calculating removal credits for these controls when implemented as enhanced non-structural BMPs. If the permittee chooses to use enhanced non-structural BMPs to earn phosphorus reduction credits for areas within the watershed of the TMDL waterbody, then the PCP must include supporting computations for the proposed phosphorus reduction credits. In addition, the controls must be incorporated into the SWMP. The permittee will also need to certify annually in its annual report that the pollution prevention and non-structural BMPs continue to be implemented in order to continue to earn any phosphorus reduction credit from them.

The enhanced non-structural BMPs that a permittee may implement under Appendix F are:

- Enhanced sweeping of impervious roadways and parking areas;
- Catch basin cleaning (ensure that no sump is more than 50% full, see part 2.3.7.1.d.ii of the Draft Permit);
- Elimination of fertilizers containing phosphorus; and
- Organic waste and leaf litter collection program.
- Elimination of Illicit Connections and Discharges

Enhanced sweeping program of impervious roadways and parking areas: The permittee may enhance the sweeping program in Part 2.3.7.1.d.iii.of the Draft Permit to earn a phosphorus reduction credit for sweeping. To do so, the enhanced program must increase the frequency of sweeping from annually to at least semi-annually. In order to earn credit for semi-annual sweeping the sweeping must occur in the spring following snow-melt and road sand applications to impervious surfaces and in the fall after leaf-fall and prior to the onset to the snow season.

Enhanced sweeping generates a phosphorus reduction credit because more frequent sweeping of impervious surfaces will remove particulate matter and associated contaminants, such as phosphorus, from impervious surfaces before they can be mobilized by the next rain event. The phosphorus removal credit for enhanced sweeping is a function of the sweeper technology used and the frequency at which the sweeping is performed. The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Attachment 2 of Appendix F.

Table 2-2 from Attachment 2 to Appendix F of the permit (shown below), presents the default phosphorus removal factors for calculating phosphorus reduction credits for enhanced sweeping programs. As indicated, the phosphorus removal factors vary according to sweeper type and the frequency of sweeping. For the mechanical brush and vacuum assisted sweeping technologies, EPA is using default factors that were developed by the Center of Watershed Protection (CWP) in fulfillment of an EPA Chesapeake Bay Program grant to develop information on reliable pollutant removal rates for sweeping and catch basin cleaning programs. The findings of this project are presented in the final report entitled *"Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout programs in the Chesapeake Basin"* and dated September 2008. This CWP project includes an extensive literature review of studies previously conducted to evaluate the pollutant removal effectiveness of sweeping and storm drain cleanout programs. EPA considers the findings from this project to represent sound science based on the currently available information on overall program effectiveness.

Table 2-2 (in Attachment 2 to Appendix F). Phosphorus removal efficiency factors ($PRF_{sweeping}$) for sweeping impervious areas.

Frequency[1]	Sweeper Technology	$PRF_{sweeping}$
2/year (spring and fall)[2]	Mechanical Broom	0.01
2/year (spring and fall)[2]	Vacuum Assisted	0.02
2/year (spring and fall)[2]	High-Efficiency Regenerative Air-Vacuum	0.02
Monthly	Mechanical Broom	0.03
Monthly	Vacuum Assisted	0.04
Monthly	High Efficiency Regenerative Air-Vacuum	0.08
Weekly	Mechanical Broom	0.05
Weekly	Vacuum Assisted	0.08
Weekly	High Efficiency Regenerative Air-Vacuum	0.10

[1] For full credit for monthly and weekly frequency, sweeping must be conducted year round. Otherwise, the credit should be adjusted proportionally based on the duration of the sweeping season.
[2] In order to earn credit for semi-annual sweeping the sweeping must occur in the spring following snow-melt and road sand applications to impervious surfaces and in the fall after leaf-fall and prior to the onset to the snow season.

While the CWP study evaluates a large body of historical information on the effectiveness of sweeping programs, those historical studies did not fully evaluate the latest generation of high-efficiency sweeping technologies. In light of the advancements in sweeping technology, EPA has been exploring the potential effectiveness of high-efficiency sweeping technologies such as the

dustless regenerative air street cleaning technology. Recently, a study was conducted in the City of Cambridge, Massachusetts by the U.S. Geological Survey (USGS) in cooperation with Cambridge, the Massachusetts Department of Environmental Protection, EPA, and a manufacturer of high-efficiency sweepers to supplement the existing body of information and refine the default phosphorus removal factors previously defined. This study has developed performance information representative of a high-efficiency regenerative air sweeping technology based on pollutant build-up and wash-off data from local conditions within the Charles River watershed and a well established City sweeping program. The final results of this study are scheduled to be published in early 2013. However, as indicated in Table 2-2, EPA has included default phosphorus removal efficiency factors for the high efficiency regenerative air-vacuum sweeping technology based in part on the draft results of the study.[7]

Sweeper technologies vary in the ability to pick up particulate matter from impervious surfaces. Mechanical broom type sweepers are effective at collecting larger particle sizes and debris while vacuum assisted sweepers and regenerative air sweepers are capable of picking up a wider range of particle sizes including small or fine sized particles that a mechanical broom sweeper would miss. Controlling fine sized particles is crucial to managing phosphorus in stormwater runoff, because a large fraction of phosphorus in stormwater is often highly associated with the presence of fine particles. As indicated, the vacuum assisted and regenerative air sweeper technologies earn a higher phosphorus removal credits than the mechanical broom sweeper for a given frequency of sweeping.

The frequency at which impervious surfaces are swept affects the overall efficiency of the sweeping program at reducing the phosphorus load in stormwater: frequent sweeping will remove a greater pollutant load from impervious surfaces before it can be washed off and discharged to receiving waters. In the metropolitan Boston area (including New Hampshire), rainfall occurs on average once every three days. This high frequency of rainfall will limit the overall effectiveness of a sweeping program because with each rainfall/runoff event, some portion of the pollutant load is washed-off from impervious surfaces, the amount depending on the intensity and volume of the rainfall. Theoretically, the most effective sweeping program for reducing stormwater phosphorus loading would sweep with a high-efficiency sweeper immediately before each rainfall/runoff event. However, such a program has practical limitations. Typically, sweeping programs follow a regular schedule to sweep impervious surfaces (e.g., first Monday of every month).

As indicated in Table 2-2, default phosphorus reduction efficiency factors have been developed for semi-annual, monthly and weekly sweeping frequencies. Default efficiency factors for semi-annual sweeping are proposed only for programs in which the sweeping occurs in the spring season following snow-melt to clean road ways of materials deposited during the winter (e.g., sand) and in the fall after leaf-fall and prior to snow-fall. The CWP sweeping efficiency evaluation done for the Chesapeake Bay region did not specify reduction efficiency factors for semi-annual sweeping. However, in New England, timely sweeping during the spring and fall can remove considerable bulk solids that have accumulated during the winter and fall seasons. Therefore, EPA is proposing default reduction efficiency factors for semi-annual sweeping based on best professional judgment

[7] Depending on when the final report is published, EPA may consider revising the PRFs for high-efficiency sweeping in the final permit. Any party that objects to any of the values in Table 2-2 should provide comments during the public comment period.

after considering efficiency factors for higher sweeping frequencies and the knowledge of bulk solids accumulations near the end of the winter and fall seasons.

Catch basin cleaning: The permittee may earn a phosphorus reduction credit for cleaning its catch basins such that a minimum sump storage capacity of 50% is maintained throughout the year. Catch basin cleaning must include the removal and proper disposal of recovered materials consistent with local and state requirements. The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Attachment 2 to Appendix F of the permit.

Catch basins can provide for the capture of limited phosphorus, provided that the available storage capacity in the catch basin sump is sufficient to hold gross particles. Catch basins are most efficient at capturing coarse sediments and debris and are not efficient at capturing fine sized particles with which phosphorus is highly associated.

Table 2-3 from Attachment 2 to Appendix F (shown below), presents the default phosphorus removal factor for calculating the phosphorus reduction credit for the required catch basin cleaning program. EPA is using a default factor that was developed by the CWP under the same project cited above. The CWP determined from previous studies that a catch basin will function properly when the sump storage capacity is at least 50% of the total sump capacity. The CWP study estimates that, in general, cleaning a catch basin on a semi-annual basis will be sufficient to maintain this capacity. EPA considers the findings from the CWP project to represent the best currently available information on overall effectiveness of properly maintained catch basins to reduce phosphorus loading.

Table 2-3 (in Attachment 2 to Appendix F). Phosphorus removal efficiency factor (PRF_{CB}) for semi-annual catch basin cleaning.

Performance Target	Practice	PRF_{CB}
Maintain minimum sump storage capacity $\geq$ 50%	Catch Basin Cleaning	0.02

Elimination of fertilizers containing phosphorus: The permittee may earn a phosphorus reduction credit by not applying fertilizers that contain phosphorus (i.e., "phosphorus free") to managed and landscaped pervious areas from which runoff discharges to the TMDL waterbody. The amount of phosphorus reduction credit will depend on the amount of pervious landscaped area to which no phosphorus containing fertilizers are applied. Attachment 2 to Appendix F provides the methodology for calculating the phosphorus reduction credit.

Phosphorus in fertilizers applied to landscaped areas and lawns is an obvious potential source of phosphorus to receiving waters in urban/suburban areas. There are a number of factors that determine the phosphorus load in stormwater from fertilized areas. These factors include the timing of fertilizer applications relative to rain events, application techniques, and whether or not the soils are phosphorus deficient for plant growth. Many lawns in New England watershed do not need phosphorus from fertilizers for healthy growth. Phosphorus containing fertilizers applied to such lawns result in excessive phosphorus levels in the turf and, consequently increased phosphorus transport during runoff events.

Studies to quantify the benefits of phosphorus fertilizer bans conducted in Ann Arbor, Michigan, and Minnesota indicate that the use of phosphorus free fertilizers results in lower phosphorus loading to receiving waters. However, due to the many variables that affect phosphorus levels in receiving waters, including other non-fertilizer sources, it is difficult to quantify the exact benefit. EPA, however, recognizes the potential water quality benefit of limiting the use of phosphorus containing fertilizer and proposes allowing a 33 % phosphorus reduction credit in the draft permit for a permittee that certifies that no phosphorus containing fertilizers have been applied to any turf and/or landscaped pervious surfaces in watersheds that drain to TMDL waterbodies.

The 33% reduction is based on assuming that pervious area runoff from watersheds receiving phosphorus containing fertilizer would on average be around 0.3 mg/L, while non-phosphorus fertilized pervious areas would on average be 0.2 mg/L. These values are based on a combination of extensive stormwater quality data analyses performed by EPA and on a review of reported characterizations of lawn nutrient runoff quality with and without phosphorus containing fertilizers (Draft CSN Tech. Bulletin No.9, 2011). An evaluation of applying the 33% reduction to the pervious area of a typical residential area (20% impervious) indicates that the overall estimated reduction after including the contribution of impervious surfaces is on the order of 6 - 16% (0.04 – 0.2 lbs/acre/year). These estimates fall generally in agreement with the limited results presented by the Michigan and Minnesota studies. The Ann Arbor study indicates a phosphorus reduction of 0.08 lbs/acre/year; similar work in Minnesota estimates that phosphorus free fertilizer use could reduce phosphorus load export rates from residential areas by 12-16%. Overall, these studies confirm the potential benefit of limiting the use of phosphorus containing fertilizers and support a phosphorus reduction credit under this permit.

Organic waste and leaf litter collection program: The permittee may earn a phosphorus reduction credit by performing proper management and disposal of landscaping wastes, organic debris, and leaf litter at an increased frequency. In order to earn the credit, the permittee must, on a weekly basis between September 1 and December 1 of each year, assure that impervious roadways and parking lots are free of landscaping wastes, organic debris, and leaf litter. The permittee must assure that the disposal of these materials will not contribute pollutants to any surface water. The permittee may use an enhanced sweeping program (e.g., weekly frequency) as a component of the enhanced organic waste/leaf litter collection program, provided that the sweeping targets organic materials. Attachment 2 to Appendix F provides the methodology and default removal factor for calculating the credit.

Organic matter, including grass clippings, leaves and mulch, all contain phosphorus that can be released when saturated with water. As a result, organic matter deposited in drainage system components (e.g., catch basins and structural BMPs) and mobilized to receiving waters during runoff events is likely to become a long-term source of phosphorus. A study investigating sources of phosphorus in two residential basins in Madison, Wisconsin estimated that approximately 30 % of the total phosphorus measured in street dirt samples was from leaf matter. Phosphorus release from decaying matter is intensified under conditions of low dissolved oxygen, which is a common condition in catch basin sumps and certain BMPs such as wet ponds.

EPA considers the transport of organic materials by runoff to be a potential considerable source of phosphorus to the surface waters in New England; activities that prevent these material from entering drainage systems are worthy of a reduction credit. Consequently, EPA is proposing a phosphorus reduction credit of 5% for an organic waste and leaf litter collection program that regularly removes organic matter from impervious surfaces during the leaf fall season. EPA considers the 5% reduction credit to be a reasonable default value based on available information.

Elimination of Illicit Connections and Discharges. The permittee may earn a phosphorus reduction credit by correcting an illicit connection to the MS4. An illicit storm water discharge is a release of non-storm water to the storm water drainage system. Examples are untreated sewage, industrial waste, improperly disposed oil or similar contaminants discharged into a storm water drainage system that then drains to a stream, river or lake. The results are high levels of pollutants such as nutrients, heavy metals, oils, greases, solvents and bacteria discharged to the waterbody. For the purposes of this permit and the calculation of phosphorus reduction credits, only removal illicit connections containing sanitary wastewater can be considered for a phosphorus reduction credit. Attachment 2 to Appendix F contains the methodology to be used when calculating the phosphorus reduction credit from the elimination of illicit connections and discharges that contain untreated wastewater. Attachment 2 to Appendix F uses a total phosphorus concentration in the illicit connection of 5.3 mg/L from Heufelder, 2006, *Evaluation of Methods to Control Phosphorus in Areas Served by Onsite Septic System,* Environment Cape Cod. EPA feels this value accurately estimates average household wastewater total phosphorus concentrations and EPA believes this concentration is more accurate than a single grab sample from an illicit connection, allowing for averaging over time.

Structural Stormwater Phosphorus BMPs

The Permittee may satisfy its Phosphorus Reduction Requirement in whole or in part by installing and maintaining structural BMPs in the area defined by the permittee.

Two stormwater management modeling analyses to better understand appropriate phosphorus reduction credits for structural stormwater controls and potential strategies for most cost-effectively achieving required phosphorus load reductions to impaired waters were recently conducted. These analyses are: 1) *Storm Water Best Management Practices (BMP) Performance Analysis,* Tetra Tech, Inc., December 2008 (revised March 2010); and 2) *Optimal Stormwater Management Plan Alternatives: A Demonstration Project in Three Upper Charles River Communities*, Tetra Tech, Inc., December 2009.

The first analysis developed information and estimates of the long-term cumulative performances of several types of structural BMPs for removing phosphorus from stormwater runoff from developed areas, assuming regional rainfall patterns. The second analysis, "the optimization analysis," involved developing optimized stormwater management strategies for Milford, Bellingham, and Franklin, Massachusetts. The analysis considered land use, soil conditions, imperviousness, space limitations, topography, depths to groundwater and bedrock, BMP efficiencies, and BMP costs to develop the best approach to the stormwater management in those municipalities. The results provide an estimate of the total amount of phosphorus control, expressed in terms of BMP type,

BMP capacity, and drainage area to be treated necessary to meet the Charles River Phosphorus TMDL reductions.

Key findings from these two analyses include the following:

> BMP performance for capturing phosphorus varies considerably depending on BMP type and capacity. Infiltration systems have the highest phosphorus removal efficiencies and can achieve high phosphorus capture rates even for small sized systems. For example, a surface infiltration system designed with a half inch (0.5) of storage capacity can achieve estimated phosphorus removal efficiencies of between 76% and 97%, depending on the infiltration rate of the subsurface soil. BMPs that include a filtering medium such as bioretenion/filtration systems, gravel wetlands, and porous pavement are the next best performers for removing phosphorus. Such BMP systems sized for storing a half inch (0.5) of runoff are estimated to achieve long-term phosphorus removal rates of between 46% and 55%, respectively. BMPs such as detention basins that rely mostly on the settling of particulate matter to remove pollutants have the poorest performance rates. For example, phosphorus removal efficiencies for dry detention ponds are estimated to level off at 15%, even for large capacity systems sized for 2.0 inches of runoff.
>
> With respect to long-term cumulative phosphorus removal, the performance of infiltration BMPs treating impervious runoff noticeably levels off when the BMP storage capacity exceeds approximately 1.0 inch of runoff. This is because much of the pollutant load available for wash-off from impervious surfaces is mobilized during the frequently occurring small sized rain events and during the early phases of less frequently occurring large rain events. In other words, an infiltration system sized for one inch of runoff will capture most of the phosphorus load that is cumulatively washed off of impervious surfaces over a long period of time.

A program aimed at optimizing phosphorus reduction strategies across a municipality will favor a management approach that maximizes the use of the most effective BMPs (e.g., infiltration practices), installs these BMPs in areas where site conditions are favorable for their use (e.g. permeable soils that will provide for phosphorus adhesion) and positions them where runoff from high phosphorus loading areas (e.g., impervious surfaces) can be captured and treated. Such a program will also size the BMPs for these optimal locations in order to most effectively capture phosphorus and achieve high removal efficiencies (e.g., 80-90%). Optimizing the type, sizing, and placement of BMPs throughout a municipality will deliver the greatest amount of phosphorus load reduction for the least cost.

Infiltration is among the most effective stormwater BMPs for controlling phosphorus and bacteria in stormwater runoff. Additionally, infiltration practices offer numerous other benefits including ground water recharge, peak runoff rate attenuation, reduced thermal impacts to receiving waters, and enhanced base flow to local streams. In short, properly placed and installed infiltration BMPs will address many aspects of water quality degradation caused by stormwater runoff from developed sites.

No particular non-structural or structural BMP is required of a permittee. EPA is interested in expanding and refining the available credits for phosphorous reduction gained through implementation of non-structural and structural BMPs. EPA believes providing and refining phosphorus reduction credits from non-structural and structural BMPs to be an on-going process and plans to update reduction credits as scientifically valid long term studies of BMP efficiencies or performance are completed and the results are reviewed by EPA staff for applicability. EPA welcomes comments proposing and providing the supporting evidence regarding phosphorous reduction credits for BMPs included as part of Attachments 1 and 2 to Appendix F as well as new BMPS (e.g. leaf litter pickup programs, catch basin inserts, augmenting BMPs with material designed to remove nutrients). Any proposed BMP performance information must be based on scientifically sound studies focusing on long term performance and evaluation of BMPs through collection of event mean concentration data during storm events and long term modeling of the proposed BMP. EPA will consider the inclusion of additional or augmented credits to be assistance to the permittees rather than a permit modification or revision.

c. Great Bay

The Great Bay Estuary is composed of a network of tidal rivers, inland bays, and coastal harbors. The Estuary extends inland from the mouth of the Piscataqua River between Kittery, Maine and New Castle, New Hampshire to Great Bay proper. In all, estuarine tidal waters cover 17 square miles with 144 miles of tidal shoreline. Over forty New Hampshire communities are entirely or partially located within the watershed. Great Bay is one of only 28 "estuaries of national significance" under the National Estuary Program (NEP), which was established in 1987 by amendments to the Clean Water Act to identify, restore and protect estuaries along the coasts of the United States. The centerpieces of the estuary are Great Bay and Little Bay. Great Bay proper is a tidally-dominated, complex embayment on the New Hampshire-Maine border. Great Bay is unusual because of its inland location, more than five miles up the Piscataqua River from the ocean**.** It is a popular location for kayaking, bird watching, commercial lobstering, recreational oyster harvesting, and sportfishing for rainbow smelt, striped bass, and winter flounder. Five tidal rivers discharge into Great Bay and Little Bay: the Winnicut, Squamscott (called the Exeter River above the tidal dam), Lamprey, Oyster, and Bellamy Rivers. Other parts of the Great Bay Estuary include the Upper Piscataqua River (fed by the Cocheco, Salmon Falls, and Great Works Rivers), the Lower Piscataqua River, Portsmouth Harbor, and Little Harbor/Back Channel.

Maintaining water quality within an estuary is important for many reasons. Estuaries provide a variety of habitats such as shallow open waters, freshwater and saltwater marshes, sandy beaches, mud and sand flats, rocky shores, oyster reefs, tidal pools, and seagrass beds. Tens of thousands of birds, mammals, fish, and other wildlife depend on estuarine habitats as places to live, feed, and reproduce. Many species of fish and shellfish rely on the sheltered waters of estuaries as protected places to spawn. Moreover, estuaries also provide a number of recreational values such as swimming, boating, fishing, and bird watching. In addition, estuaries have an important commercial value since they serve as nursery grounds for two thirds of the nation's commercial fish and shellfish, and support tourism drawing on the natural resources that estuaries supply[8]. Consequently, EPA believes sound environmental policy reasons favor a pollution control approach

[8] Coastal Watershed Factsheets – Estuaries and Your Coastal Watershed. U.S. Environmental Protection Agency, Office of Water, EPA 842-F-98-009. July 1998.

that is both protective and undertaken expeditiously to prevent degradation of these critical natural resources.

In both marine and freshwater systems, an excess of nutrients results in degraded water quality, adverse impacts to ecosystems and limits on the use of water resources.[9] Nitrogen is the most critical element in coastal and marine ecosystems like the Great Bay Estuary, with nitrogen loading regarded as one of the important drivers of coastal eutrophication [10,11,12,13]. Eutrophic waters often exhibit dense growths of algae or other nuisance aquatic plants, depressed levels of dissolved oxygen, loss of fish and submerged aquatic vegetation and foul odors. [14] For Great Bay in particular, the negative effects of the increasing nutrient loads on the estuary system are evident in the decline of water clarity, eelgrass habitat loss, and failure to meet water quality standards for dissolved oxygen concentrations in tidal rivers[15]

Stormwater runoff from urban areas, including MS4 regulated areas, can contain significant concentrations of harmful pollutants, including nitrogen, that can contribute to adverse water quality impacts in receiving streams. The primary sources of nitrogen in urban stormwater are:

- Wash-off of wet and dry atmospheric deposition from impervious areas
- Wash-off of fertilizers used on pervious surfaces
- Nitrogen attached to eroded soils and stream banks
- Wash-off of organic matter (such as pollen and leaves) and pet wastes that are deposited on impervious surfaces
- Leaching of nitrate from functioning and malfunctioning septic system leachate
- Illicit connections to MS4s

Residential lawns and turf areas in urbanized watersheds have been shown to be "hot spots" for nutrient input into urban runoff.[16] In general, runoff from lawns and turf areas that discharge directly to a waterbody or through other conveyance (e.g. an MS4) contributes greater quantities of nutrients than runoff from other urban source areas. Research suggests that nutrient concentrations in runoff from lawns and turf areas can be as much as four times greater than those from other urban nutrient source areas.[17] Across the nation, the median total nitrogen concentration for urban stormwater averages 2.0 mg/l.[18]

[9] Fundamentals of Urban Runoff Management: Technical and Institutional Issues. Earl Shaver, Richard Horner, Joseph Skupien, Chris May, Graeme Ridley. 2007

[10] Nitrogen Pollution in the Northeastern United States: Sources, Effects, and Management. Driscoll et al. 2003

[11] Nitrogen, Phosphorus, and Eutrophication in the Coastal Marine Environment. John Ryther and William Dunstan 1971

[12] Clean Coastal Waters: Understanding and Reducing the Effects of Nutrient Pollution. NRC. 2000

[13] National Coastal Condition Report III. US EPA 2008

[14] Source and Delivery of Nutrients to Receiving Waters in the Northeastern and Mid-Atlantic Regions of the United States. Richard B. Moore, Craig M. Johnston, Richard A. Smith, and Bryan Milstead. 2011

[15] Piscataqua Region Estuaries Partnership, *Environmental Indicators Report*, 2009).

[16] Impacts of Impervious Cover on Aquatic Systems. Center for Watershed Protection. 2003

[17] Impacts of Impervious Cover on Aquatic Systems. Center for Watershed Protection. 2003

[18] CSN TECHNICAL BULLETIN No. 9 Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed Version 1.0 REVIEW DRAFT. Chesapeake Stormwater Network, 2011

After issuance of the 2008 draft, NHDES amended its 2008 CWA Section 303(d) listing of impaired waters to include a number of nitrogen-impaired waters in the Great Bay watershed. See NHDES, *Amendment to the New Hampshire 2008 Section 303(d) List Related to Nitrogen and Eelgrass in the Great Bay Estuary* (http://des.nh.gov/organization/divisions/water/wmb/swqa/2008/documents/20090813_303d_list_update.pdf). These waters are also listed on the 2010 Section 303(d) list. EPA has analyzed available information, including but not limited to the information in the NHDES report: *Analysis of Nitrogen Loading Reductions for Wastewater Treatment Facilities and Non Point Sources in the Great Bay Estuary Watershed-Draft* (http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/gb_nitro_load_analysis.pdf). EPA's analysis shows that significant nitrogen load reductions in point and non-point source discharges of nitrogen, are necessary to ensure compliance with water quality standards. For the purposes of the NHDES study, the non-point source discharges of nitrogen requiring load reductions included all watershed sources that do not originate from a waste water treatment plant, including: agricultural runoff, groundwater discharge, atmospheric deposition and stormwater discharge to the Great Bay Estuary and its tributaries. While the loading analysis did not differentiate between MS4 stormwater discharge (point source stormwater discharges) and other stormwater discharges (non MS4 discharges), reductions are needed from **all** watershed sources. EPA assumes these reductions are especially important when dealing with MS4 stormwater discharges in urban areas, which typically deliver more nitrogen directly to receiving waters than rural areas.[19]

The Piscataqua Region Estuaries Partnership ("PREP") also conducted a nitrogen loading study and estimated that "tributaries and runoff" contributed approximately 75% of the nitrogen load to Great Bay in 2006-2008[20]. According to the report, the most pressing threats to the estuaries relate to population growth and the associated increases in nutrient loads and non-point source pollution. Watershed-wide development has created new impervious surfaces at an average rate of nearly 1,500 acres per year. Based on the review of available loading analyses for the Great Bay Estuary and information on stormwater quality gathered in the Great Bay Estuary Watershed and across the country, EPA has concluded that nitrogen in stormwater discharging to the Great Bay Estuary or its tributaries is contributing to the impairments in the Great Bay Estuary. While the extent to which nitrogen loads result from MS4 discharges, as opposed to agriculture, septic systems or other sources, has not been quantified, substantial reductions in nitrogen loads from **all** sources will be required to adequately address nitrogen loading in the Great Bay Estuary watershed. Because nitrogen loading continues to exacerbate existing water quality problems in the Great Bay Estuary, and because the remaining questions regarding municipal stormwater concern not *whether* it contributes to the non-point source nitrogen loading but rather *how much* reduction will be necessary, EPA believes there is sufficient basis to begin addressing nitrogen discharges to the Great Bay notwithstanding any remaining scientific uncertainty regarding the precise relative contribution of nitrogen from MS4 discharges.

For these reasons, EPA has included in the new Draft Permit specific provisions applicable to MS4s that discharge to the nitrogen-impaired waters of the Great Bay Estuary and its tributaries. For the

[19] CSN TECHNICAL BULLETIN No. 9 Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed Version 1.0 REVIEW DRAFT. Chesapeake Stormwater Network, 2011
[20] Piscataqua Region Estuaries Partnership *Environmental Indicators Report*, 2009).

purposes of this permit, EPA has chosen to address nitrogen discharges to the Great Bay Estuary and its tributaries in an iterative approach through augmenting the general provisions related to discharges to impaired waters without a TMDL at Part 2.2.2 (which has also been revised to provide clearer guidance as to appropriate responses to impairments, as described in Part B of this Fact Sheet in the response to comments 2.2.2(i) to (iv)). For MS4 discharges to the nitrogen-impaired waters of the Great Bay Estuary and its tributaries, the new Draft Permit prescribes specific BMPs that must be included in the permittee's Water Quality Response Plan to address nitrogen. These are included in Part 2.2.3 and Appendix H of the new Draft Permit.

EPA has also included a requirement for permittees to begin tracking nitrogen reductions from structural controls installed by the permittee as well as estimating nitrogen removal from the removal of illicit connections. It should be noted that this tracking is for informational purposes only and the Draft Permit does not contain any permittee specific nitrogen load reduction requirements. This requirement is specifically designed to track quantifiable reductions in nitrogen discharging to the Great Bay Estuary and its tributaries and may be used to comply with future permit conditions or future TMDL WLAs if the EPA and the state agency find the reductions consistent with future permit conditions or WLAs. Reductions gained through non-structural practices (e.g. street sweeping, catch basin cleaning) will be an important part of any successful nitrogen reduction program. However, EPA has not currently adopted nitrogen removal efficiencies specific to these practices and anticipates additional research in this area to inform future nitrogen reduction credits for non structural BMPs. EPA has adopted nitrogen loading rates, and structural BMP performance for nitrogen removal from extensive work being conducted in Chesapeake Bay. Specifically, the nitrogen removal efficiencies indicated in Attachment 1 in Appendix H are from two documents produced by the Chesapeake Stormwater Network: (1) CSN TECHNICAL BULLETIN No. 9, August 2011, *Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed.* http://chesapeakestormwater.net/category/publications/csn-technical-bulletins/and (2*) Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards* http://chesapeakestormwater.net/wp-content/plugins/download-monitor/download.php?id=25. EPA recognizes that the performance of some BMPs may be underestimated by the current methods contained in Attachment 1 to Appendix H and EPA anticipates refining the nitrogen loading and removal efficiencies from structural and non-structural controls specifically for the Great Bay Estuary watershed in future permits, but beginning to track nitrogen loading increases and decreases to the Great Bay Estuary is essential now. Permittees are also encouraged to begin tracking all other sources of nitrogen removal and increased loading taking place within their municipal boundaries. EPA is currently in the process of developing spreadsheet tools that permittees may use for this initial nitrogen tracking. EPA expects these tools to be available upon final permit issuance.

d. Discharges to Impaired Waters Without an Approved TMDL

Based on the continual advancement of stormwater science pertaining to pollutant loading rates and effects, along with the benefits of clarifying permit provisions for waters where no pollutant load reduction has been prescribed, the new Draft Permit contains new requirements for discharges to impaired waters without an approved Total Maximum Daily Load (TMDL). The new requirements aim to clarify the responsibility of permittees discharging to impaired waterbodies. The new Draft Permit encompasses a similar process of identifying BMPs to address the pollutant of concern as

was set forth in the 2008 draft, however the type of pollutant source evaluation and BMP implementation expectations have been clarified in what is now referred to as a "Water Quality Response Plan" for ease of reference. The new Draft Permit specifically provides for an iterative approach in the permittee's response to water quality improvements and requires permittees to:

- implement appropriate source control and pollution prevention BMPs to address the pollutant of concerns, with specific BMPs identified in the permit to be considered for inclusion in the plan, along with structural controls, municipal infrastructure projects and impervious area disconnection programs as determined by the permittee;
- identify and assess pollutant sources within the contributing MS4 area; and
- identify prospective BMPs that may be implemented if further reductions are determined to be necessary.

While permittees are engaged in an ongoing process of implementation and reassessment of BMPs, they will also be required to generate specific information related to their discharges to impaired receiving waters including the development of mapping of subcatchments that drain to impaired waters that identifies and catalogues key features such as potential source areas of the pollutant(s) of concern. The information gathered by permittees over this permit term along with additional information gathered by EPA can facilitate an analysis to identify areas where future stormwater pollutant reductions are needed from MS4 discharges.

While the requirements in Part 2.2.2 apply to discharges to all impaired waterbodies, EPA presumes that MS4s discharging to waterbodies impaired for nutrients (nitrogen and phosphorus), bacteria, chloride, suspended solids, metals, or oil and grease are potential contributors to impairments. In order to maintain consistency in approach watershed or town wide, MS4 discharges to those waters impaired for chloride require specific actions addressed in Part 2.2.4 and Appendix H. This is to ensure MS4 discharges to waters listed as impaired for chloride receive the same level of effort to remove the pollutant as those MS4 discharges to waters impaired for chloride with an applicable approved TMDL. This approach provides clarity of permit requirements, along with consistent regional approach to deal with chloride in stormwater. For MS4 discharges to impaired waters without an approved TMDL for all other constituents, the new Draft Permit prescribes a specific phased approach to address the pollutant(s) of concern. The requirements are included in Part 2.2.2 of the new Draft Permit and are discussed further in Part B in the response to comments 2.2.2(i) to (iv).

5. Consistency with other federal laws

When EPA undertakes an action, such as the reissuance of an NPDES permit, that action must be consistent with other federal laws and regulations. Regulations at 40 CFR §122.49 contain a listing of Federal laws that may apply to the issuance of NPDES permits. This Draft Permit is designed to satisfy the requirements of four federal Acts that apply to the reissuance of these general permits: the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), the Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat), and the Coastal Zone Management Act. The 2008 Fact Sheet (Attachment A) discusses in detail how the requirements of these acts are being met; references to the specific sections of Attachment A are provided below.

Endangered Species – Attachment A, pages 5 to 10. The provisions related to the ESA have not been changed from those in the 2008 draft. However, the Atlantic Sturgeon *(Acipenser oxyrinchus*) has been added to the list of species of concern for this Draft Permit. EPA requested concurrence from the appropriate federal services (U.S. Fish and Wildlife Service and National Marine Fisheries Service (NMFS)) in connection with the 2008 draft and has renewed this request for the new Draft Permit.

Essential Fish Habitat – Attachment A, pages 10 to 12. The new Draft Permit also includes additional BMPs to address discharges of nitrogen to the waters of Great Bay (a designated EFH) and its tributaries in light of the addition of those waters to the State of New Hampshire 303(d) list after the 2008 draft permit was issued. See Draft Permit Part 2.2.3 and Part A at Great Bay. EPA has determined that the Draft Permit prevents or minimizes adverse effects on EFH. EPA requested that NMFS review that determination in connection with the 2008 draft permit and has renewed this request for the new Draft Permit.

Historic Preservation – Attachment A, pages 12 to 14. The provisions related to the NHPA have not changed from those in the 2008 draft permit.

Coastal Zone Management Act – Attachment A, pages 14 to 19. EPA requested the New Hampshire Coastal Program to review and to concur with EPA's consistency determination for the 2008 draft permit and this request remains applicable to this Draft Permit.

6. State Certification Requirements

State Certification requirements are set forth in Part 3.0 of the new Draft Permit and are the same as in Part 4.0 of the 2008 draft. The requirements include conditions regarding infiltration and recharge to groundwater (Part 3.1); prioritization of coastal waters with public swimming beaches in implementation of the SWMP (Part 3.1.1); provision for NHDES to add additional water quality certification requirements if necessary to protect water quality (Part 3.1.2); and public drinking water requirements (Part 3.2).

7. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to Newton Tedder, U.S. Environmental Protection Agency, 5 Post Office Square, Suite 100 (OEP06-1), Boston, MA 02109. EPA will accept comments on all aspects of the new Draft Permit. A public hearing will also be held; information is provided in the Federal Register Notice of Availability of this Draft Permit and Fact Sheet.

While EPA is particularly interested in comments on material that is new or different in the new Draft Permit, please note that the new Draft Permit completely supersedes the 2008 draft permit,

and EPA is providing an entirely new comment period under 40 CFR. § 124.10.[21] Consequently, all persons who believe any condition of the new Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position during *this* public comment period (including the public hearing).[22]

In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments submitted during this second comment period and make these responses available to the public at EPA's Boston office and on EPA's web site.

Following the close of the comment period, and after the public hearing, the Regional Administrator will issue a final permit decision, publish a Notice of Availability of the Final Permit in the Federal Register, and notify each person who has submitted written comments or requested notice of the final permit decision. EPA will also provide as much notice as possible to the facilities to be covered by the general permit.

8. EPA Contact

Additional information concerning the Draft Permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m. Monday through Friday excluding holidays from:

Newton Tedder
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-4)
Boston, MA 02109
Telephone: (617) 918-1038
Email: tedder.newton@epa.gov

[21] EPA was not legally obligated to reopen the entire permit for comment, but determined that in this case it would simplify and expedite EPA's issuance of a final permit to do so because of the large number of provisions that have been changed from the 2008 draft to this new Draft Permit. Consequently, EPA has exercised its discretion to process this as a new draft permit under 40 CFR § 124.6, subject to a new comment period under § 124.10, rather than reopening comment subject to § 124.14(c).

[22] This includes commenters who submitted a comment on the 2008 draft but believe that a similar comment would apply to this new Draft Permit, and/or that EPA's response and explanation provided in this Fact Sheet does not adequately address the original comment. See 40 CFR §§ 124.13, 124.17(a)(2); *In re Avon Custom Mixing Servs., Inc.*, 10 E.A.D. 700, 706 (EAB 2002).

SECTION B.

Responses to Comments and Explanation of Changes from 2008 Draft Permit

This section describes the comments received on the previous draft permit that was placed on public notice in 2008 (the "2008 draft") and changes made to develop the new Draft Permit. This includes changes in response to specific comments made during the public comment period and those made for purposes of clarification or in response to new information or conditions arising since the close of the comment period. This portion of the fact sheet is organized by subject matter. Comments and changes relating to specific permit provisions are grouped by applicable permit part. This is followed by general comments on the 2008 draft permit document. Multiple comments submitted on a single issue are grouped together with a single response where appropriate.

The comments set forth below were received during the public comment period on the previous draft permit, beginning on December 23, 2008 and concluding on February 20, 2009. This time period included one 21-day extension of the public comment period. A public hearing was held on January 28th, 2009 at Portsmouth City Hall in Portsmouth, NH. Each party that submitted written comments or spoke at the public hearing is listed below. A cross reference for each party's specific comment and location of the response is provided in Attachment B to this Fact Sheet. Any comments or information provided after the public comment period are not specifically addressed in this Fact Sheet.

Town of Amherst	Town of Rochester
Town of Derry	Town of Windham
City of Dover	Comprehensive Environmental Inc.
Town of Durham	Conservation Law Foundation[1]
Town of Exeter	New Hampshire Rivers Council[1]
Town of Goffstown	Cobbetts Pond Improvement Association[1]
Town of Hollis	Roger Frymire
Town of Londonderry	Steve Miller
City of Manchester (2)	New Hampshire Department of Transportation
City of Nashua	Seacoast Stormwater Coalition of New Hampshire
City of Portsmouth (2)	University of New Hampshire
Town of Seabrook (2)	
City of Somersworth	

[1] Joint written comments were submitted by the Conservation Law Foundation, New Hampshire Rivers Council and Cobbetts Pond Improvement Association. These comments are referred to in this document as comments by "CLF et al."

I. COMMENTS ON SPECIFIC PERMIT PROVISIONS

Part 1.0 INTRODUCTION

1.1 Areas of Coverage

Comment 1.1 from Conservation Law Foundation (CLF) et al. – We understand that in Massachusetts, EPA intends to develop separate MS4 general permits for four specific geographic areas, and that it intends to do so based on unique water quality issues (i.e., TMDLs) applicable to those areas. In light of the foregoing, we believe a similar approach makes sense for New Hampshire's Great Bay estuary watershed. In particular, the significant threats facing the Great Bay estuary (which include stormwater-related threats); existing impairments in the estuary relative to nitrogen pollution and eelgrass losses and the imminent Section 303(d) listing of those impairments; the imminent development of numeric nutrient criteria for the estuary; and the need to develop TMDLs to ensure the attainment of those nutrient criteria; all warrant special treatment of this watershed for MS4 permitting purposes. We request that EPA create a general permit for MS4s located within the watershed of the Great Bay estuary which directly and specifically addresses the challenges and needs facing the estuary.

> **Response to comment 1.1** – EPA has determined that a statewide permit for New Hampshire represents an appropriate boundary in accordance with 40 CFR §122.28. We agree that those MS4s located within the Great Bay estuary watershed warrant special conditions in connection with the documented impairments of the estuary; those special conditions, and the reasoning and analysis behind them, are set forth in new Draft Permit Part 2.2.3 and the Response to comment 2.2.2(ix). This is consistent with EPA's approach with respect to the Massachusetts general permits, where each general permit contains provisions applicable to only a subset of covered communities in connection with a TMDL or documented impairment. See, e.g., Draft General Permits for Stormwater Discharges from Small MS4s in Massachusetts North Coastal Watersheds, § 2.2.1(d) (re *Final TMDL for Nutrients in the Lower Charles River Basin*), (e) (Neponset River Watershed bacteria TMDL) and (f) (Shawsheen River Basin bacteria TMDL). In addition, EPA plans to re issue one statewide draft general permit covering Massachusetts.
>
> *Changes to permit: The permit text of Part 2.2.3 has been revised accordingly, also, see Response to Comment 2.2.2(ix).*

1.3 Limitations of Coverage

Comment 1.3(i) from CLF et al. - This section of the draft permit provides that certain stormwater discharges are not authorized for permit coverage. Among those limitations, it properly does not extend permit coverage to "discharges prohibited under 40 CFR 122.4 " or to "discharges that cause or contribute to an instream exceedance of a water quality standard. . . ." Draft Permit 1.3(i), (k). These provisions are essential to enforcing the Clean Water Act's central tenet that permitted discharges not cause or contribute to water quality violations.

The above provisions, however, must be further strengthened to ensure their proper implementation – i.e., to ensure that the permit not authorize discharges that will, in actuality, cause or contribute to water quality violations. Specifically, it is worth noting that the draft permit requires applicants to (1) follow specific procedures to assess the impacts of their stormwater discharges and associated activities on federally listed endangered and threatened species and designated critical habitat, and (2) certify compliance with this procedure in their submitted Notice of Intent ("NOI"). Draft Permit § 1.3(e), App. C. To ensure program implementation in a way that ensures compliance with water quality standards, and that does not unlawfully authorize discharges that cause or contribute to water quality violations, the permit must use a similar model for impaired waters. More particularly, we urge EPA to adopt provisions requiring applicants to specifically assess their proposed discharges as they relate to waters that are impaired as a result of pollution that can be attributed to stormwater, to specifically demonstrate that their proposed discharges will not cause or contribute to such impairments, and to certify that they have undertaken such an analysis.

Response to Comment 1.3(i) - EPA disagrees that it "must" use a model for impaired waters that is similar to the certification requirement set forth under Part 1.3 for federally listed endangered and threatened species. Part 1.3(e), Part 1.9.1 and Appendix C of the permit are structured to comply with the procedural requirements of Section 7 of the federal Endangered Species Act of 1973, which requires consultation with the relevant federal agencies prior to federal action - here the issuance of a NPDES authorization. EPA is not subject to comparable procedural requirements with respect to impaired waters under the Clean Water Act or otherwise.

A certification process requiring that permittees prove that they already are in compliance with water quality standards, prior to authorization under the permit, is inconsistent with EPA's regulations and permitting practice. EPA's permitting regulations are designed to address water quality and other CWA regulations through the development of permit conditions for the discharge that will ensure that the discharge will meet the applicable requirements. Section 301 of the CWA prohibits discharge of a pollutant without, or contrary to the requirements of, a NPDES permit. The permittee's responsibility is to meet the requirements of the permit that authorizes its discharge, and failure to meet those requirements is addressed through compliance and enforcement actions within the scope of the permit, not through a denial of authorization. Indeed, since most of the MS4s potentially subject to authorization under this permit are already discharging stormwater, the purposes of the CWA would not be well-served by excluding permittees from all the more stringent requirements of the reissued permit until such time as they resolve every specific water quality issue.

This general permit therefore includes conditions specifically designed to provide a procedure for permittees to identify, evaluate and address discharges to impaired waters in order to ensure that discharges do not cause or contribute to exceedances of water quality standards, but does so within the scope of the permit. The specific requirements are discussed further in the Response to Comments 2.2.2(i) to (iv). The permit also includes a specific requirement to address discharges that are determined to be causing or contributing to water quality violations that applies even if a waterbody has not been identified as

impaired pursuant to CWA section 303(d). These conditions satisfy the statutory and regulatory requirements.

While a certification process is not required for these discharges, we agree that the 2008 draft did not clearly set forth the relationship between section 1.3(k) and the process for assessing and addressing discharges to impaired waters (set forth in Part 2.2) or other discharges that may cause or contribute to water quality violations (Part 2.1(c)). The intent of this permit is that discharges that contribute to listed impairments or otherwise cause or contribute to water quality violations be included within the permit authorization subject to the specific conditions for such discharges set forth in Part 2.1 and 2.2. In order to clarify this, the new Draft Permit includes revisions to part 1.3 deleting subparagraph (k). EPA also notes that the new Draft Permit includes modifications to the requirements for discharges to impaired waters to clarify the necessary scope of actions to address those discharges, as discussed in Response to Comments 2.2.2(i) to (iv).

Changes to permit: Part 1.3 is modified by deleting subparagraph (k) and renumbering accordingly.

Comment 1.3(ii) from CLF et al. - Section 1.3 of the draft permit, pertaining to limitations on permit coverage, provides that the permit does not authorize discharges that are likely to adversely affect species listed as endangered or threatened under the Endangered Species Act, or adverse impacts on designated critical habitat. Draft Permit § 1.3(e). The draft permit also sets forth procedures applicants must follow to assess these issues and to thereby determine eligibility for permit coverage. We believe this language should be expanded to also require consideration of species listed as endangered or threatened under New Hampshire state law. Such an approach would be consistent with the New Hampshire Coastal Zone Management Enforceable Policies – discussed in EPA's Fact Sheet (pp. 14-19) – which include a number of plant and wildlife considerations that are in no way limited to species listed under the Endangered Species Act. See EPA Fact Sheet at 15, 16. It also will be necessary to ensure that discharges do not adversely affect state-listed species – such as Blandings turtle (endangered) and spotted turtle (threatened) – which depend on aquatic resources.

Response to comment 1.3(ii) - EPA disagrees that species listed as endangered or threatened under New Hampshire law should be included in part 1.3. Part 1.3(e) and Part 1.9.1 of the permit are structured to comply with the procedural requirements of Section 7 of the federal Endangered Species Act of 1973 (the "ESA"), which requires consultation with the relevant federal agencies prior to federal action – here, the issuance of a NPDES permit authorization. ESA requirements do not apply to state-listed species.

The procedures for compliance with the New Hampshire Coastal Zone Management Enforceable Policies are governed by the federal Coastal Zone Management Act, l6 U.S.C. Sections l45l et seq., and its implementing regulations (15 CFR Part 930). These require that any federally licensed activity affecting a state's coastal zone be consistent with the enforceable policies of approved state management programs. In the case of general permits, EPA has the responsibility for making the consistency determination and submitting it to the State for concurrence. EPA's consistency determination is set forth in

this Fact Sheet at pages 3-4 (see also Appendix A at 14-19), and EPA has requested concurrence from NH CZM.

Finally, New Hampshire retains the authority to impose further requirements under either a water discharge permit issued pursuant to N.H. Rev. Stat. § 485-A:13, or through Part 3.1.2 of this permit.
Changes to permit: none.

1.4 Non-Stormwater Discharges

Comment 1.4 from City of Portsmouth (David Allen, P.E.) - This section states that the listed Non-Stormwater Discharges are assumed to be acceptable unless EPA, the State, or the permittee identify that they are significant sources of pollutants. This statement, which presumes that the listed non-stormwater discharges are acceptable unless proven otherwise, is consistent with the previous USEPA MS4 General Permit for NH, MA, and VT (2003 - 2008), and the related (MSGP 2000 and 2008) permits. However, Section 1.4 appears to be in direct conflict with Section 2.3.4.4 (page 18) of this Draft General Permit, which identifies that, "The permittee must evaluate the sources of non-stormwater discharges in Part 1.4 and determine whether these sources are significant contributors of pollutants to the municipal system... The permittee must document in the SWMP its determinations on each of the non-stormwater discharges listed in Part 1.4."

Response to comment 1.4 – EPA does not agree that Parts 1.4 and 2.3.4.4 of the 2008 draft are inconsistent. Part 1.4 provides a list of non-stormwater discharges that are not included in the categorical prohibition of non-stormwater discharges from the MS4. Non-stormwater discharges that are not on this list are defined as "illicit discharges" pursuant to part 2.3.4.1 of the permit and must be eliminated. Part 1.4 does not preclude, and indeed clearly contemplates, that permittees will make determinations as to whether specific discharges listed in that Part are significant contributors. However, EPA agrees that requiring individual analyses and documentation regarding each of these types of discharges by over 40 permittees in NH is not an effective use of resources and has modified Part 2.3.4.4 accordingly. See Response to Comment 2.3.4.4(ii) to (v). With respect to Part 1.4, EPA has modified the language in the Permit to more closely track the regulatory language of 40 CFR §122.34(b)(3)(iii).

Changes to permit: The permit text of Part 1.4 has been revised accordingly

1.7 NOI

Comment 1.7.2 from City of Portsmouth – The suggested form provided by USEPA in Appendix E requires that information related to the 2003 SWMP be provided. Most MS4s submitted annual reports that already provided this requested information. In addition, the requirements for each minimum control measure state that the MS4 must continue those BMPs from the previous permit that are still appropriate. If a permittees prior annual report and future SWMP already contain this information, does it need to be provided again in a separate section?

Response to comment 1.7.2 – EPA agrees that requiring information on BMPs implemented under the previous permit in the NOIs is duplicative of information previously provided in the annual report and therefore has eliminated this requirement in the Permit. However, the permittee shall still report on specific requirements of the MS4-2003 as noted in Appendix E (e.g. the status of regulatory mechanisms and mapping) and shall include in the NOI all BMPs that will be continued in its future SWMP in its listing of BMPs. While these BMPs have previously been identified, they must be included so that the NOI contains complete information regarding the permittee's system and planned activities to meet the new permit requirements. This will facilitate review by EPA for purposes of authorization, as well as by the state agencies and the public.

Appendix E has been revised to require the inclusion of additional information concerning interconnections (where the MS4 discharges to a connected system rather than at an outfall to a receiving water), discharges to impaired waters pursuant to Part 2.2.2 (see Response to Comments 2.2.2.a(i) to (iii)), and submission of a system map. The format has also been revised as part of EPA's continuing effort to move toward optional electronic filing and reporting. Similar templates are being developed for annual reporting. True electronic filing (e-filing as sole filing method) is not likely to be available for NOI filing under this Permit, but EPA encourages permittees to use the NOI template and to provide electronic copies to EPA by email. EPA is currently developing a proposed Rule for electronic reporting, so electronic reports may be required in the future. Permittees will be notified of electronic reporting options as they are finalized.

Changes to permit: Appendix E has been revised as described above.

Comment 1.7.4 from CLF et al. – In *Environmental Defense Center v. Browner* ("*EDC*")[, 344 F.3d 832 (9th Cir. 2003)], the U.S. Court of Appeals for the Ninth Circuit addressed the type of review required for Notice of Intent ("NOIs") submitted by small MS4s seeking coverage under a general permit. Certain petitioners in *EDC* challenged the EPA's small MS4 regulations on the ground that they failed to require EPA to review the substance of NOI submissions to ensure compliance with the Clean Water Act. In addressing this critical issue, the *EDC* Court started with the proposition that the Clean Water Act imposes certain substantive requirements that must, consistent with the clear intent of Congress, be satisfied by small MS4s seeking coverage under a general permit. Specifically, the Court found "the plain language of §402(p) of the Clean Water Act, 33 U.S.C. § 1342(p), expresses unambiguously congress's intent that EPA issue no permits to discharge from municipal storm sewers unless those permits 'require controls to reduce the discharge of pollutants to the maximum extent practicable.'" The *EDC* Court concluded that EPA must review the substance of NOIs to ensure compliance.

As a result of the *EDC* decision, EPA must substantively review NOIs to ensure compliance with the Clean Water Act and applicable standards. Because NOIs include substantive elements of permit applicants' SWMPs (see Draft Permit, Appendix E), EPA must engage in a substantive review and approval of these SWMP elements - and, by logical implication the SWMP as a whole - to ensure compliance with all applicable standards and requirements before granting authorization to discharge.

Response to comment 1.7.4 – EPA agrees that, under the *EDC* decision, EPA must conduct a meaningful review of NOIs to ensure compliance with the permit. To that end, Part 1.7.4.b of the permit states that based upon a review of a small MS4's NOI or other information, EPA may grant authorization, extend the public comment period, or deny authorization under this permit and require submission of an application for an individual or alternative NPDES permit. EPA will conduct an appropriate review of NOIs.

EPA disagrees that this review obligation extends "by logical implication [to] the SWMP as a whole." EPA has structured the NOI to provide substantive information sufficient to determine whether the proposed controls meet the requirements of the permit. The NOI by design does not contain the level of detail of the SWMP, which is intended to provide comprehensive operational and procedural guidance for the implementation of a permittee's program. Review of the NOIs is sufficient to meet the requirements of *EDC v. Browner*.

Changes to permit: none.

1.8 Alternative Permits

Comment 1.8 from City of Portsmouth (Allen) - Please identify any petitions that have been received for New Hampshire, or which may be pending submittal to the USEPA.

Response to comment 1.8 – EPA has received no petitions under Part 1.8 as of the date of this Response to Comments, and EPA is not aware of any petitions that are pending submittal.

Changes to permit: none.

1.9 Special Eligibility Determinations

Comment 1.9(i) from Town of Exeter - If we have certification regarding Endangered Species and Historic Properties from the first permit, do we need to request additional documentation?

Comment 1.9(ii) from Town of Windham – Is there carry-over from our existing NOI and Storm Water Management Plan from 2003, i.e. historic properties, maps, general NOI, endangered species etc? Do we need to re-create the wheel?

Response to comments 1.9(i) and (ii) – Applicants must meet the eligibility requirements set forth in Appendix C (endangered species) and D (historic properties) of the Permit and must certify that these requirements have been met in the NOI submitted under this permit. This certification must be based on current, updated information, although EPA expects that applicants will be able to rely substantially on information developed in connection with their 2003 NOIs in meeting this requirement. To the extent that consultation with the relevant agencies is deemed necessary in accordance with Appendix C and/or D, such consultation is necessary even if a previous consultation was conducted in 2003.

EPA assumes that there will be substantial carryover from permittees' existing NOIs, SWMPs and maps, although all of these elements will have to be updated and expanded as necessary to meet the additional requirements of the new permit. It is not EPA's intent that permittees "recreate the wheel", but that they improve and expand upon their existing programs.

Changes to permit: none.

1.10 Stormwater Management Program (SWMP)

Comment 1.10.b from the City of Manchester - The 120 day time frame would be sufficient to modify existing BMPs, but is not enough time to review, plan and update measurable goals. Previous goals will first have to be reviewed to determine effectiveness. Updating goals should be given at least one year of time.

Response to Comment 1.10.b - EPA has determined that the SWMP deadline should be modified to "one (1) year from permit effective date" to provide for consistency with the deadlines for SWMP elements throughout the permit. See Response to Comments II.C.1 to 6. Therefore permittees will have one year from permit effective date to review, plan and update measureable goals.

Changes to permit: permit text of Part 1.4 has been revised accordingly

Comment 1.10.c(i) from the City of Manchester – Regarding the permit provision "The permittee is encouraged to maintain an adequate funding source for the implementation of this program. Adequate funding means that a consistent source of revenue exists for the program."

The concern that we have along with the other communities that were represented at the public hearing is with the costs associated with this program. The City of Manchester estimates that compliance with this permit will cost at a minimum an additional $850,000 per year above what is already being spent to comply with the current permit., This cost is 1/3 of the entire personnel cost for a staff of 44 employees at the wastewater treatment plant. In this economic environment with budget cuts and lost revenues the communities that are regulated under this permit including Manchester would have a difficult time ensuring these funds will be available and therefore complying with this section based on the current permit requirements and associated costs. Currently stormwater is funded under the City's general fund and is therefore subject to budget cuts due to the budget constraints that we all are facing.

Comment 1.10.c(ii) from City of Portsmouth - Stormwater Utilities are the only statutory vehicle in New Hampshire that provides the local authority to charge existing private entities to help pay for extensive environmental investigations and rehab of infrastructure. Other available statutory authority exists within local Site Plan or Subdivision regulations, but it only pertains to new proposed development. Similar State Regulations such as Alteration of Terrain rules only apply to larger new developments. The idea of a Stormwater Utility is dramatic paradigm shift for small communities that are already struggling with out-of-control municipal budgets

Comment 1.10.c(iii) from City of Nashua - The City is in the preliminary stages of determining if a Stormwater Utility is a viable means of obtaining revenue in order to fund the operation, maintenance and improvements needed to the drainage collection system. The implementation of the utility, should it be deemed feasible, is years away from producing revenue. Until a revenue mechanism is in place, the City will not have the needed funding to complete many of the prescriptive requirements of the 2008 permit.

Response to comment 1.10.c – In 1987, Congress amended the Clean Water Act to better regulate stormwater runoff, and in particular required that "[p]ermits for discharges from municipal storm sewers . . . shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and shall require controls to reduce the discharge of pollutants to the maximum extent practicable." CWA §§ 402(p)(3)(B)(ii)-(iii). EPA understands that implementation of this requirement may entail substantial additional costs. EPA also understands that funding of stormwater management from a municipal general fund may be subject to the vagaries of budget cuts and competition with other municipal departments. This is the reason EPA encourages permittees to maintain an adequate funding source for implementation of the program. While EPA does not purport to require particular funding mechanisms, our experience suggests that replacing funding from a general fund with a stable, dedicated funding source such as a stormwater utility, although it may be a difficult transition, has great potential to address the funding concerns identified by the City of Manchester and other commenters.

The comparison made by Manchester with the staffing of the wastewater treatment plant is instructive. It is widely accepted that the costs associated with meeting Clean Water Act requirements for sanitary sewer systems and wastewater treatment plants should be met through a dedicated account funded by user fees. A shift to meeting wastewater treatment plant staffing needs through the general fund would likely be considered unworkable for precisely the reasons given in the comment – that budget constraints and the balancing of wastewater treatment needs against fire, police and other municipal priorities would lead to reduced staffing and result in violations of NPDES permits. The same rationale can be applied to stormwater systems.

EPA also agrees with the comment by Portsmouth that the approach to stormwater management in MS4s required under this permit may require a "paradigm shift" in many communities. Residents often do not recognize the existence of separate storm sewer systems, let alone that these systems may have an extent, complexity and water quality impacts that rival those of sanitary sewer systems. Treating these systems as important infrastructure that needs to be properly managed to meet Clean Water Act requirements may well require a paradigm shift. In addition, traditional approaches to stormwater have essentially treated rain as a waste product to be disposed of, with flooding the primary management concern. Low impact design, green infrastructure and other approaches encouraged and required by the permit treat rain as a resource – an entirely different approach that may require a paradigm shift among both the public and public works personnel. For these reasons, public education and participation has been a focal point of the MS4 program from its inception.

EPA therefore strongly encourages alternative means of funding, such as stormwater utilities, and has developed materials to assist communities in pursuing funding options. See EPA, Funding Stormwater Programs (2009) (http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/FundingStormwater.pdf). EPA recognizes that implementing a stormwater utility takes time. EPA has attempted to respond to concerns about funding cycles in setting time frames and deadlines, as described in the Response to Comments II.C.1 to 6.

Notwithstanding the above, EPA notes that Part 1.10.c in the permit is advisory.

With respect to the specific cost estimate provided by the City of Manchester, this aspect of the comment is addressed in Response to Comment II.B.7.

Changes to permit: none.

1.10.2 Contents of the Stormwater Management Program

Comment 1.10.2(i) from Town of Londonderry - It is unclear if private outfalls should be included in the list; access to private outfalls may not be possible.

Comment 1.10.2(i) from Town of Derry - The SWMP must contain a "Listing of all receiving waters"… "and number of outfalls that discharge to each water." Since the requirements of the permit apply only to "Permittee-owned" outfalls, should it be assumed that the listing is limited to the same, or does it require an inventory of all outfalls owned by private or commercial entities, located on private property, whether regulated or not under alternative state and/or federal programs. The town recognizes the importance of having records of all outfalls, particularly in "high pollutant load areas", and for the implementation of an IDDE program. However, listing ALL privately owned outfalls would require access to private properties to conduct detailed investigation solely for the sake of mapping.

Response to Comments 1.10.2(i) and (ii) – This provision of the Permit is not intended to charge the operator of an MS4 with responsibility for outfalls that are privately owned and do not receive a discharge from the MS4. In response to the comment, EPA has revised the language of Part 1.10.2 to clarify that outfalls are only included in the scope of this requirement if they are "outfalls *from the MS4*". See also Response 2.3.4.2. To the extent the permittee is aware of any private outfalls EPA encourages keeping records of such outfalls as noted by the Town of Derry, as such records may prove to be of assistance in tracing pollutant sources. However, the permit does not require tracking or monitoring of private outfalls.

In addition, EPA notes that a discharge from a permittee's system to another MS4 or other storm sewer system (public or private) is also a regulated discharge under the Clean Water Act and is covered by this Permit. The CWA requires NPDES permits for any "discharge of pollutants", which is defined at 40 CFR § 122.2 to "include additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man

[and] discharges through pipes, sewers, or other conveyances owned by a State, municipality or other person which do not lead to a treatment works . . .". EPA has therefore clarified this section to include those interconnections.

Changes to permit: The permit text of Part 1.10.2 has been revised accordingly

Comment 1.10.2(iii) from Town of Londonderry - There are many types of discharges that can potentially impact public drinking surface and groundwater. It is unclear what the intent of documenting these items is. It appears that the water supplies should have been identified; well head protection areas determined and regulations currently in place to regulate discharges.

Comment 1.10.2(iv) from Town of Derry - The draft MS4GP encourages permittees to "document in the SWMP all public drinking surface water and groundwater that may be impacted by the discharges." It is unclear what EPA constitutes as "impacted" whether solely negative impacts due to potential pollutant sources or also positive impacts where both EPA and NHDES advocate for infiltration for groundwater recharge. This should be clarified to further define "impacted" and whether it is positive impact (groundwater recharge) or negative impact (high pollutant load within a regulatory defined area relative to the supply intake or Well Head Protection Area).

All public drinking water systems are already mapped by towns and the state (NHDES). It is also this permittee's experience that the state prefers to keep some details of drinking water sources confidential as a precaution under the Homeland Security envelope. Having information publicly available through the SWMP regarding potential opportunities to negatively impact public supplies is not in the public's best interest. Since all public drinking water systems are already mapped by towns and the state, it might be more appropriate to document this program under an evaluation looking at high pollutant load area and their potential to impact drinking water supplies. The SWMP should only include enough information to indicate that an evaluation was conducted, and that it was conducted under the regulatory authority of pre-existing NHDES drinking water programs.

Response to comments 1.10.2(iii) and 1.10.2(iv) – EPA understands that there are existing regulatory programs that apply to drinking water sources. EPA's intent in requiring documentation of these items is to facilitate establishment of links between municipal stormwater programs and drinking water programs. To the extent that drinking water programs establish requirements related to stormwater management, such as no-salt zones for winter maintenance, restrictions on infiltration practices, etc., these items should be included in the SWMP to provide a complete picture of the municipality's program. EPA also notes that the Additional State Requirements included by the State of New Hampshire in Part 4.2 include several provisions related to drinking water, including a requirement that "MS4s that discharge to public drinking water sources and their source protection areas must consider these sources priority resources when implementing control measures of Part 2.3."

EPA agrees that the term "impact" can refer to a number of different types of effects, but is retaining the term to provide flexibility for permittees in designing their program.

The permit does not require detailed mapping of drinking water sources, or specific identification of opportunities to target the system. Rather, the permit contemplates general identification of measures and practices that are being implemented with the specific goal of protecting drinking water supplies. EPA disagrees that including "only . . . enough information to indicate that an evaluation was conducted" would be sufficient to allow meaningful review or implementation of the SWMP.

Upon further review, EPA has required the documentation of all public drinking water sources in the new Draft permit instead of merely encouraging the documentation of such sources. This change provides clarity of permit conditions and facilitates the requirement to describe measures to avoid or minimize impacts to public and private drinking water sources required in the SWMP.

Changes to permit: The permit text of Part 1.10.2 has been revised accordingly

Comment 1.10.3 from the City of Manchester - Section 2.3.4.5 states a separate storm sewer system map must be finished by two (2) years from the effective date of this permit. This is in conflict with section 1.10.3 bullet one that states mapping must be completed three (3) years from the effective date of the permit and even cites section 2.3.4.5.

Response to comment 1.10.3 – EPA disagrees that there is a conflict between the permit provisions cited. Part 1.10.3 establishes deadlines for new permittees not covered under the MS4-2003. Such permittees are given an additional two years to complete the mapping requirement of part 2.3.4.6. The new Draft Permit also includes a modification of the timelines for such new permittees as discussed in Part A.4(a) of this Fact Sheet.

Changes to permit: The permit Part 1.10.3 has been revised accordingly.

Part 2.0 NON-NUMERIC EFFLUENT LIMITATIONS

2.1 Requirements to Meet Water Quality Standards

Comment 2.1.1.a(i) from CLF et al. - Section 2.1.1(a) of the draft permit limits the "applicable water quality standards" for purposes of the permit to "the State standards that are in place upon the effective date of this permit." Draft Permit 1.1(a). We strongly object to this limitation and urge EPA to make clear in the final permit that water quality standards include those additional standards adopted by the State after the effective date of the permit but during its five-year term. The significant challenges facing the Great Bay estuary – as evidence by existing nitrogen and eelgrass-related impairments, and the imminent 303(d) listing of many of its waters for those impairments – highlight the need for this amendment. Specifically, NHDES is in the process of developing nitrogen criteria that will be adopted as part of the state's water quality standards. It is essential that MS4s discharging to estuarine and associated waters be subject to these criteria during the term of this permit.

Response to comment 2.1.1.a(i) – EPA's decision to limit the scope of "applicable water quality standards" to those in place when the permit is issued is consistent with EPA's practice in NPDES permitting in general. This practice allows parties who are commenting upon a draft permit the opportunity to understand the full scope of what the permit requires; if future amendments to water quality standards were part of a permit a commenter may not foresee the full extent of its requirements and would thus be deprived of the opportunity to comment on them. EPA's regulations, 40 CFR § 122.62(a)(3), address the conditions under which a change in a water quality standard may give rise to an opportunity to modify a permit. *See also* 40 CFR. § 124.5.

With respect to nutrient criteria specifically see response to comment 2.2.2(ix).

Changes to permit: none.

Comment 2.1.1.a(ii) from CLF et al. - We urge EPA to strike from the permit the provision, "in the absence of information suggesting otherwise, discharges will be presumed to meet the applicable water quality standards if the permittee fully satisfies the provisions of this permit". This presumption directly contradicts the statutory burden imposed on dischargers, under the Clean Water Act, to demonstrate that water quality standards will be met. It also undermines other requirements in the permit specifically pertaining to impaired waters and, we fear, may cause regulated entities to not address those requirements. Additionally, it undermines and is contrary to the right and ability of citizens under Section 505 of the Clean Water Act to enforce the provisions of the permit.

Response to comment 2.1.1.a(ii) –

EPA has reconsidered this provision and concluded that it has no meaningful purpose in the permit. In light of this, the presumption language has been struck.

Changes to permit: The permit text of Part 2.1.1 has been revised accordingly.

Comment 2.1.1.c(ii) from the Town of Goffstown – Leaving 60 days to rectify an exceedance of water quality standards is unreasonable. There will be times when the solution will not be an easy fix or within the direct authority and control of the MS4. Third parties will become involved and these things will take time to work out. There may also be legitimate budget constraints that have to be planned and budgeted. There should be good faith mechanism that allows problems to be resolved with diligence and persistence over time so long as a demonstration can be made that there is progress towards solution.

Comment 2.1.1.c(iii) from Town of Exeter - We do not believe that 60 days is feasible for time allowed between discovering a discharge and correcting. (ex. - there was a intermittent discharge, -not into our system but into a local stream, from a private entity - it took quite some time for them to trace the origins from the discharge - even with the town helping- it is a very large campus with many buildings and facilities.) If the discharge had been into our system it would take even longer to remove.

Comment 2.1.1.c(iv) from Town of Londonderry - Elimination of a condition causing or contributing to an exceedance of water quality standards within 60-days of its discovery seems unachievable. Elimination and fixing of such a problem may be time consuming and costly and not able to be accomplished within 60-days. The regulators should be flexible and willing to work with the permittees in determining a solution and proceeding in such a manner.

Response to comments 2.1.1.c(ii) to (iv) – EPA agrees that there will be occasions where 60 days will be insufficient time to eliminate a condition causing or contributing to an exceedance of water quality standards. EPA has therefore included new language in the Permit governing situations where elimination within 60 days is infeasible. In those situations, the Permit requires permittees to treat such discharges in the same manner as discharges found to contribute to an impairment under Part 2.2, identifying and implementing BMPs to address the pollutant of concern as part of a "Water Quality Response Plan." The details of such a plan are described further in Response to Comment 2.2.2.

With respect to the Town of Exeter's comment, EPA notes that it appears to describe an illicit discharge situation. EPA notes that illicit discharges into the MS4 system violate this permit. See Permit Part 2.3.4.2. Permittees must eliminate any identified illicit discharge as expeditiously as possible, must establish an expeditious schedule for removal if elimination does not occur within 30 days, and must diligently pursue elimination, pursuant to Part 2.3.4.2. EPA also notes that illicit discharges from private entities that discharge directly into a local stream are not subject to this Permit but represent independent violations of the Clean Water Act. EPA applauds the Town's assistance in eliminating this private illicit discharge.

Changes to permit: The permit text of Part 2.1.1.c. has been revised accordingly.

Comment 2.1.1.c(v) from Comprehensive Environmental Inc. (CEI) – It is likely that many outfalls will not meet water quality standards; however, extensive modeling would be required to determine the impact of specific discharges on receiving waters. Regardless, elimination of such a condition within 60 days of knowledge is impractical. The language under this part needs further clarification as to what constitutes a discharge causing or contributing to an exceedance of a water quality standard, possibly including a list of exemptions/situations that do not apply. This will avoid situations where the MS4 may be in violation due to the 60 day criteria or a determination cannot be made without further analysis, modeling, etc. If this section is attempting to address obviously contaminated discharges from the MS4 it should be stated as so.

Comment 2.1.1.c(vi) from the Town of Derry – Define discharges that cause or contribute to an exceedance of applicable water quality standards. In its current usage, the presence of any detectable concentration of a compound, even that which may be naturally occurring or ubiquitous in the environment, could be considered as falling under the definition and require extensive and unnecessary efforts and expense on the part of the permittee in an attempt to "eliminate the condition". The definition should ensure that more effort is not required on the part of the permittee to conduct expensive modeling to prove or disprove whether the presence

of a compound in discharge from a permittee-owned discharge is "contributing" to an exceedance.

Response to comments 2.1.1.c(v) and (vi) - EPA agrees that some outfalls may not meet water quality standards at the 'end-of-pipe', and that this alone may not indicate that a MS4 discharge is causing or contributing to an exceedance of water quality standards. It is the impact on the receiving water at the point of discharge that determines whether a discharge causes or contributes to the exceedance of water quality standards. There are many cases where extensive modeling is not necessary to determine that a discharge is contributing to a water quality violation, and it is these situations this provision primarily addresses. These can include obviously contaminated discharges (e.g. trash, oily sheens and other visible contaminants), but may also include simple sampling results (e.g. high bacteria counts downstream of a specific outfall but not upstream, high conductivity downstream of a municipal salt pile) or other cases where there are straightforward indicators of a discharge's contribution to an exceedance. In such cases the permit requires the MS4 operators to take action to address the conditions causing or contributing to the exceedance. EPA recognizes that this will not always be feasible within 60 days and has modified the permit language accordingly, as discussed in the Response to Comments 2.1.1.c(ii) to (iv).

EPA disagrees that the permit language can reasonably be read to encompass "the presence of any detectable concentration of a compound, even that which may be naturally occurring or ubiquitous in the environment", as suggested by the Town of Derry. The mere presence of a pollutant in a MS4 discharge does not indicate that there is a resulting exceedance of water quality standards in a receiving water at the point of discharge, and the permit does not require a response based on that information. This permit provision also does not require permittees to conduct their own modeling to determine impacts.

Change to permit. The permit text of Part 2.1.1.c. has been revised accordingly.

Comment 2.1.1.c(viii) from CLF et al. – We strongly support these provisions.

Response to comment 2.1.1.c(viii) - EPA acknowledges the comment. EPA believes that these provisions are an essential element in addressing water quality impacts caused by MS4 discharges. EPA expects that the changes outlined in the response to comments 2.1.1.c(v) and (vi) will improve implementation of these provisions.

Changes to permit: none.

Other changes

The new Draft Permit includes a new Part 2.1.2, New and Increased Discharges, that is a relocation of the 2008 draft Part 2.2.4. An explanation of the reason for the relocation and minor modifications to the permit language are set forth below in the Responses to Comments 2.2.4(i) to (iii).

2.2 Discharges to Impaired Waters

Comment 2.2(i) from CLF et al. - Section 2.2 of the draft permit states: "Impaired waters are those waters that the State agency has identified pursuant to Section 303(d) of the Clean Water Act as not meeting applicable state water quality standards." Draft Permit § 2.2. Given the five-year duration of the permit, it is essential that the term "impaired waters" include not only waters already appearing on the state's 303(d) list at the time the final permit is issued, but also waters that are otherwise known to be violating water quality standards, and waters added to the 303(d) list *after* issuance of the final permit. For example, as further discussed in Part VI of these comments, below, NHDES has identified numerous waters in the Great Bay estuary as being impaired as a result of significant eelgrass declines and excessive nitrogen. Although known to be impaired, these waters have not yet been added to New Hampshire's Section 303(d) list. The addition of these impairments to the Section 303(d) list, a process in which EPA is currently engaged, is believed to be imminent. If, however, the actual Section 303(d) listing does not occur until after the effective date of the final permit, these waters must nonetheless be treated as impaired waters under the permit. Should the waters not be added to the list in advance of the final permit's issuance, it will be essential to provide notice to all regulated entities discharging directly or indirectly to these waters of their impaired status. We urge EPA to address this issue – should the 303(d) listing process not be complete upon issuance of permit – by adding a new appendix to the permit that (1) identifies these waters as impaired; (2) states that such waters must be treated as impaired for purposes of implementing and complying with the permit's requirements pertaining to impaired waters; and (3) notes that the waters will be added to the 303(d) list at some time in the future. These impaired waters, and other waters added to the Section 303(d) list in upcoming listing cycles, must be treated as impaired waters under the permit.

Response to comment 2.2(i) – There are two distinct issues involved in this comment: (1) waters that are added to the 303(d) list after issuance of the final permit, and (2) waters that are not added to the 303(d) list or listed as impaired, yet which experience excursions above water quality standards. However, the new Draft Permit treats them similarly.

EPA does not agree that Section 2.2 of the permit should apply to all waters that are characterized as (in the comment's terms) "known to be violating water quality standards." The Draft Permit's language is intended to provide a clear and identifiable set of waters for analysis in connection with the development of the SWMP. The commenter's suggestion would create a vague and amorphous standard and circumvent the clear responsibility assigned to States and EPA under the CWA for identifying impairments.

Instead, the revised Draft Permit addresses waters under the following provisions:

- All waters: Part 2.1
- Waters with an approved TMDL as of the permit effective date: Part 2.2.1
- Waters listed as impaired on the 303(d) list as of the permit effective date, but without an approved TMDL as of the permit effective date (even if a TMDL is later approved after the permit effective date): Part 2.2.2

- Waters that are not listed as impaired on the 303(d) list as of the permit effective date, but which (1) experience excursions above water quality standards (including but not limited to waters added to the 303(d) list, or otherwise authoritatively determined to be impaired by the state/tribal agency or EPA, after the permit effective date) and (2) in which the permittee's MS4 discharge causes or contributes to such excursions: Part 2.1.1.c

Note that, in certain circumstances, Part 2.1.1.c may invoke the Water Quality Response Plan provisions of Part 2.2.2.a.ii. A permittee discharging to a water that *is* listed as impaired as of the permit effective date is presumed to be causing or contributing to the impairment, and must develop a WQRP *unless* the presumption of contribution is overcome, as provided in Part 2.2.2.a.i.c. Conversely, a permittee discharging to a water that is *not* listed as impaired as of the permit effective date need only develop a WQRP under the specific circumstances in Part 2.1.1.c requiring a WQRP.

Of course, if a new 303(d) listing or new TMDL makes a permit modification appropriate, EPA may modify the permit pursuant to 40 CFR § 122.62 and the procedural provisions of 40 CFR part 124.

With respect to Great Bay in particular, the impaired waters in the Great Bay estuary were added to the State of New Hampshire's 303(d) list after the close of the public comment period on the 2008 draft. In August 2009 NHDES issued its *Amendment to the New Hampshire 2008 Section 303(d) List Related to Nitrogen and Eelgrass in the Great Bay Estuary*. This Amendment added new impairments relative to the Aquatic Life designated use for 36 Great Bay estuary assessment units based on assessments of eelgrass loss, total nitrogen, dissolved oxygen, chlorophyll-a and water clarity The Permit identifies known MS4s discharging to the nitrogen-impaired waters of the Great Bay and their tributaries and establishes specific requirements with respect to those systems as set forth in the response to comment 2.2.2(ix). Therefore the commenter's specific suggestions regarding these waters are moot.

Changes to permit: The permit text of Part 2.2 has been revised accordingly.

Comment 2.2(ii) from the Town of Hollis - The need to identify, monitor and prevent the further degradation of impaired waterways is beyond the technical capabilities of the Town of Hollis. The requirement to manage this task creates the need for the Town to seek outside technical assistance. Will EPA or DES offer technical support and assistance to aid regulated communities? Barring outside agency assistance, this requirement represents another significant cost to the community.

Response to Comment 2.2(ii) – EPA recognizes that this permit places responsibilities on permittees with respect to impaired waterways. However, EPA disagrees that the permit requires permittees to "identify, monitor and prevent the further degradation of impaired waterways" as characterized in the comment.

"Identification": Impaired waterways have been identified by NHDES pursuant to Clean Water Act requirements under CWA Sections 305 and 303(d), resulting in a listing of

impaired waters that is updated every two years and is publicly available on the NHDES website. See http://www.des.state.nh.us/organization/divisions/water/wmb/swqa. The obligation on permittees is to make themselves aware of the impairments that have been identified in waters to which the MS4 discharges, so that those impairments can be taken into account in planning municipal programs under the permit.

"Monitoring": This permit does not require monitoring of impaired waterways. Rather, the permit requires monitoring of discharges from the MS4. Monitoring of waterways, impaired and otherwise, is conducted by NHDES under their rotating basin sampling program, lake surveys, beach monitoring and biomonitoring programs, as well as by volunteer groups through NHDES' Volunteer Lake Assessment Program and Volunteer River Assessment Program. See http://nhwatersheds.unh.edu/information/nhdesmon.html. Permittees may choose to perform instream monitoring as part of their assessment of BMPs, see Part 2.2.2., but this is only one of several methods suggested for assessment purpose.

"Prevent the further degradation of impaired waterways": Permittees do not have a general requirement to prevent further degradation from all sources. However, the permit does require permittees to implement measures so that their own MS4 discharges do not cause degradation of water quality or contribute to exceedances of water quality standards.

While the permit requirements are not as broad as the comment suggests, the Permit does place on permittees a responsibility for permittees to take action where there discharges have the potential to cause or contribute to an impairment or are determined to be causing or contributing to a violation, and to assess the results of those actions. EPA recognizes that this may in some cases be beyond the expertise of municipal staff and that in many cases outside technical assistance may be beneficial. (This is also true for privately owned dischargers subject to NPDES permits.) EPA and NHDES have sought to provide technical support and assistance to aid regulated communities with respect to many permit provisions, and EPA expects to provide support with respect to these provisions as well.

Changes to permit: none.

2.2.1 Discharge to an Impaired Water with an Approved TMDL

Comment 2.2.1.a from CLF et al. - Section 2.2.1(a) of the draft permit references Appendix F of the permit, which identifies and describes certain specific TMDLs already in place in New Hampshire. Appendix F should be amended to include the TMDLs approved by EPA on January 14, 2009 relative to chlorides impairments in Dinsmore, Beaver and Policy/Porcupine Brooks and the North Tributary to Canobie Lake. Also, rather than relying exclusively on provisions pertaining to specific TMDLs to be described in Appendix F, Section 2.2.1(a) should be amended to include general requirements pertaining to discharges to impaired waters with TMDLs. Specifically, we urge the inclusion of language requiring MS4s with such discharges to (1) affirmatively demonstrate controls being implemented to control the pollutants identified in approved TMDLs; (2) evaluate whether additional controls are necessary to satisfy TMDL requirements; (3) implement all controls necessary to satisfy TMDL requirements; and (4) document the foregoing analyses and implementation in the NOI, SWMP and annual reports.

These general requirements will be crucial to ensuring both that TMDLs are met (as required by the CWA and regulations), and that the public has an active role in understanding and supporting the achievement of the needed pollutant load reductions.

Response to comment 2.2.1.a – EPA agrees that there have been additional TMDLs approved since the 2008 draft was issued, including the four chlorides TMDLs noted in the comment as well as the Statewide Bacteria TMDL and Lake Nutrient TMDLs. These TMDLs have been added to Appendix F of the Permit, along with specific requirements for those municipalities that are subject to the approved TMDLs.

For the chlorides TMDLs, the additional requirements include

(1) development of a Salt Reduction Plan for municipal winter maintenance operations, identifying specific actions to be taken, the estimated salt load reduction expected from each action, and a demonstration that the expected salt reduction meets the waste load allocation in the TMDL;
(2) implementation of the Salt Reduction Plan by the end of the permit term;
(3) implementation of requirements for private property owners that discharge to the MS4 to use trained contractors or staff for winter maintenance and require reporting of salt usage by such contractors or staff; and
(4) requirements that new developments subject to section 2.3.6 commit to salt minimization plans and reporting of salt usage.

EPA notes that the communities that are subject to the four chloride TMDLs have had the opportunity to receive funding from NHDOT for development and implementation of Salt Reduction Plans. See *Chloride Reduction in the I-93 Watersheds - Municipal Program* (June 2008) (http://www.rebuildingi93.com/documents/Municipal%20Program%20-%20TMDL.pdf, accessed December 15, 2010). The new Draft Permit requirements are structured to allow communities to use the plans developed under the existing funding program to meet the permit requirement, so long as the estimated reductions meet the waste load allocation in the relevant TMDL. Requirements for private property reporting are discussed further in the Response to Comments 2.2.3(i) to (x). EPA notes that the Permit requirements include timelines for plan development and implementation that it believes represent achievable milestones for addressing this complex problem and related public safety concerns. However, these timelines are not a compliance schedule, as compliance schedules within a permit are not permissible under New Hampshire's water quality standards. Permittees remain subject to the general requirements of Part 2.1 (i.e. that discharges shall not cause or contribute to a water quality violation) while such plans are being implemented, and EPA has clarified the permit language accordingly.

For the bacteria TMDL, the new Draft Permit requires the permittee to complete a water quality response plan (WQRP) consistent with Part 2.2.2.a.ii. that incorporates additional and modified BMPs to address bacteria discharges. The permittee can choose to implement one WQRP for all bacteria impaired waters (those with and without an

approved TMDL) in order to provide for a consistent approach in dealing with discharges to bacteria impaired waterbodies. The assessment required in Part 2.2.2.c. requires the permittee to assess its program over the course of the permit term and identify and implement, if necessary, additional BMPs if the TMDL reductions are not achieved.

With respect to the proposal for additional language imposing specific demonstration, analysis, implementation and documentation requirements for TMDLs, EPA believes that the Permit language as written adequately addresses the comment's concerns. The Permit requires that the permittee include in the SWMP all BMPs proposed for discharges to impaired waters (Part 1.10.2), and include in each annual report the specific BMPs implemented for discharges to impaired waters (Part 2.2.2), an assessment of the effectiveness of the program (Part 4.4.2.1 and 4.4.2.2), an assessment of the effectiveness of specific BMPs at controlling pollutants causing impairments (4.4.2.5), and planned changes to BMPs (Part 4.4.2.7). Part 2.2.1(h) requires permittees to implement additional BMPs if necessary to meet the applicable TMDL. Public participation is required in the review and implementation of the SWMP on an annual basis (Part 2.3.3).

Changes to permit: The permit text of Part 2.2.1 and Appendix F have been revised accordingly.

Comment 2.2.1.c from CLF et al. - Section 2.2.1(c) of the draft permit states, with respect to TMDLs that do not specify a wasteload allocation ("WLA") individually or categorically for discharges from small MS4s, that compliance with certain conditions in the permit "will be presumed adequate to meet the requirements of the TMDL, unless otherwise notified by EPA." For the reasons discussed above relative to Section 2.1.1, the final permit should eliminate any *presumption* of adequacy, and EPA should affirmatively and specifically assess whether the discharger has met all applicable requirements, including those contained in applicable TMDLs, to ensure that discharges do not cause or contribute to water quality violations.

Response to comment 2.2.1.c – The provision cited in the comment applies where an "applicable TMDL does not specify a wasteload allocation or other requirements either individually or categorically for the MS4 discharge." EPA has determined that for the State of New Hampshire the only TMDL that meets this description that is potentially applicable in an area covered by this permit is the Acid Lakes TMDL. Therefore EPA is addressing this comment by deleting the general reference to TMDLs that do not specify a WLA along with the presumption included in that paragraph, and including a specific reference to the Acid Lakes TMDL.

The Acid Lakes TMDL requires reductions in atmospheric deposition (acid rain) to achieve the load reductions necessary to meet water quality standards in the impaired ponds. While the TMDL treats all stormwater under a load allocation for nonpoint sources, rather than specifying a WLA for regulated stormwater point sources, the assumptions underlying the TMDL WLA and LA are that atmospheric deposition sources are to be addressed through source controls rather than measures implemented by operators of stormwater systems.

Therefore no requirements related to this TMDL are imposed on MS4 operators under this Part. However, there may be cases where MS4 discharges contain pollutants of concern from sources other than atmospheric deposition that are not within the scope of the TMDL that cause or contribute to exceedances of water quality standards. In those cases, the permittee shall address those discharges as they do other discharges that are found to cause or contribute to water quality violations (Permit Part 2.1.c).

The revision to this Permit Part eliminates the "presumption" contained in the 2008 draft. EPA has specifically determined that the provisions of this Part meet all applicable requirements.

Changes to permit: The permit text of Part 2.1.c has been revised accordingly.

Comment 2.2.1.d from CLF et al. - Section 2.2.1(d) of the draft permit states: "'Applicable TMDLs' for discharges from the permittee's MS4 are those that have been approved by EPA as of the effective date of this permit." We urge EPA to amend this language to allow for the possibility that additional, relevant TMDLs may be finalized during the five-year term of the permit, and to ensure that those TMDLs are taken into consideration for purposes of determining, at a minimum, (1) whether specific discharges can continue as authorized under the permit, and (2) whether SWMPs, BMPs and other conditions must be modified for discharges into waters that are the subject of those TMDLs. Regulatory developments pertaining to the Great Bay estuary – i.e., the imminent listing of numerous impairments which, in turn, will require the development of TMDLs – illustrate the importance of including future TMDLs in the permit.

Response to comment 2.2.1.d – Section 2.2.1.d of the 2008 draft permit (now part of Permit Part 2.2.1.a) is consistent with EPA's regulations at 40 CFR § 122.44(d)(1)(vii)(B), which provides for limits consistent with any available wasteload allocation for the discharge "prepared by the State and approved by EPA pursuant to 40 CFR 130.7." EPA has determined that consistency with approved TMDLs is an appropriate water quality requirement pursuant to 40 CFR § 122.34 (a). EPA disagrees with the suggestion that it should go beyond its practice in NPDES permitting, and the requirements applicable to other NPDES permits under 40 CFR § 122.44(d)(1)(vii)(B), in order to incorporate requirements to meet additional relevant TMDLs that have not been approved but may be finalized during the permit term. *Cf. In re Dominion Energy Brayton Point, LLC,* 12 E.A.D. 490, 611-18 (EAB 2006). EPA does, however, retain the authority to modify the permit during its term where necessary. *See* 40 CFR § 122.62.

Changes to permit: none.

2.2.2 Discharge to an Impaired Water without an Approved TMDL

Comment 2.2.2(i) from the Town of Durham – In the absence of a TMDL (which is typically the case in New Hampshire), [this section and Section 2.2.1] will essentially require the communities to conduct their own TMDLs to comply, and will require municipalities to dramatically expand operation and established Stormwater Divisions if they haven't already done so.

To what extent is the permittee required to "evaluate" the discharge?
Are the parameters and acceptable methods defined?
Will the evaluation need to be performed by a Professional Engineer or Geologist? And
Will the water quality monitoring need to be conducted by certified technicians? State Statute would appear to dictate so, and Consulting firms simply are not yet set up to do this!
How is this to be funded if not through something like a Stormwater Utility?

Stormwater Utilities are the only statutory vehicle in New Hampshire that provides the local authority to charge existing private entities to help pay for extensive environmental investigations and rehab of infrastructure. Other available statutory authority exists within local Site Plan or Subdivision regulations, but it only pertains to new proposed development. Similar State Regulations such as Alteration of Terrain rules only applies to larger new developments. The idea of a Stormwater Utility is dramatic paradigm shift for small communities that are already struggling with out-of-control municipal budgets. To do the work needed to investigate how to fairly assess discharges and design a whole new enterprise fund will take considerably more than 1 year.

This puts a tremendous burden on a small community like Durham, New Hampshire with only 10,000 residents where only about half are within the MS4. It will also require the Town to establish a whole new division of engineers, environmental scientists and technicians, additional laborers and heavy equipment to expressly manage and maintain the stormwater system needs. To do so will take much more than and year and will likely increase the annual Department of Public Works budget by at least 25 percent.

How much guidance and financial assistance are the EPA and NHDES prepared to offer to help small communities respond to these new mandates?

Comment 2.2.2(ii) from City of Manchester – What is considered an “evaluation”? The EPA needs to make this language more clear.

Comment 2.2.2(iii) from Seacoast Stormwater Coalition of NH – The Draft Permit requires municipalities to conduct undefined evaluations of discharges into impaired water bodies where Total Maximum Daily Load (TMDL) studies are not yet performed. Will the EPA define the scope and limit of the evaluations, or does the EPA expect the State of New Hampshire to define the criteria through new administrative rules? Without clearly defined criteria in which the evaluations are to be based, the results will be of limited use. It is necessary that the criteria and list of parameters be reasonable, purposeful, and conscious of cost.

Comment 2.2.2(iv) from University of New Hampshire (UNH) – This section requires the permittee to "evaluate discharges" and identify BMPs "to ensure that discharges do not cause or contribute to the impairment." That can require significant time and expense on the part of the permittee doing work that would normally be done by the NH-DES and/or EPA as part of a TMDL study. Consider deleting this requirement for impaired waters until an approved TMDL is in place. Alternately, consider deleting 2.2.2.a, because outfall analysis is already required by Section 3.0; and in 2.2.2.b, replace "ensure that discharges do not cause or contribute to” with "minimize."

Response to comment 2.2.2(i) to (iv) – EPA has revised the permit to clarify the type of evaluation and BMP implementation that is expected.

With respect to evaluation, EPA does not expect that permittees should perform detailed modeling or other quantitative analysis that would normally be associated with a TMDL. Rather, the permittee should evaluate on a qualitative level the sources of pollutants to its system and whether its discharges are potential contributors to the impairment, based on the nature of the pollutant, available monitoring data; land use or impervious cover in the MS4 area; the proportion of the watershed to the receiving water that is in the permittee's jurisdiction; and the presence or absence of other pollutant sources; along with other information deemed relevant by the permittee. A determination that MS4 discharges are not potential contributors to the impairment must be documented in the annual report and will be reviewed by EPA.

The Permit also requires a source identification and assessment study that requires permittees to identify source categories and specific locations within the contributing catchments. A preliminary written assessment must be included with the SWMP, and an updated report on the results must be submitted to EPA and must also contain outfall mapping and catchment delineations, calculations of the size of MS4 area draining to the receiving water, any monitoring data and, where available, impervious area and directly connected impervious area data for the contributing catchments. In order to make use of information being developed under Part 2.3 of the permit (mapping, monitoring, etc.), this report must be submitted in the third year of the permit term. EPA may use these reports, in conjunction with other data, to perform its own evaluations of MS4 pollutant contributions to impaired waters to determine where more stringent BMPs will be needed in future permit terms if no TMDL is approved.

With respect to BMP implementation, EPA recognizes that in complex situations there are substantial uncertainties concerning the extent of pollutant load reductions needed from specific MS4s, complicating the effort to design a program that on a large scale "ensures that discharges do not cause or contribute" to impairments. EPA did not intend this to be read to require permittees to perform a TMDL-like analysis to determine a load allocation and associated reduction in order the meet the requirement. EPA recognizes that both NHDES and EPA have an essential role in determining the level of large scale pollutant load reduction that must be achieved by permittees and anticipates identifying TMDL-like load reduction targets for discharges to impaired waters that will be incorporated into future MS4 permits.

EPA is also aware that many permittees, especially those in highly urbanized areas, likely will be challenged to attain all applicable water quality standards within this MS4 permit cycle. At the same time, EPA specifically rejects the suggestion that the standard of "ensure that discharges do not cause or contribute" to impairments be replaced with a different standard (e.g. "minimize"). EPA believes that it is important to retain in the permit language that prohibits discharges that cause or contribute to exceedances of water quality standards. EPA notes that this language is not new in the reissued permit, as the MS4-2003 requires a SWMP section "describing how the program will control the discharge of the

pollutants of concern and ensure that the discharges will not cause an instream exceedance of the water quality standards." The 2003 permit also requires the permittee to "develop, implement and enforce a program to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, protect water quality and *satisfy the water quality requirements of the Clean Water Act and state water quality standards*. [emphasis added] EPA does not intend to relax this requirement because it is necessary to protect water quality and achieve the goals of the Clean Water Act. *See also* CWA § 402(o); 40 CFR § 122.44(l) (anti-backsliding requirements).

The Water Quality Response Plan lays out a timeline that EPA believes is reasonable for addressing complex or widespread sources of impairments in the absence of a TMDL that establishes the necessary load reductions and allocation. EPA has long recognized that it may take decades or longer to address the water quality impacts of existing municipal stormwater discharges. See EPA's Preamble to the Phase II regulations, 64 Fed. Reg. 68722 (Dec. 8, 1999). In part, this is because of the difficulty and challenges associated with reversing the water quality impacts of existing stormwater discharges, which are associated with long term patterns of land use and infrastructure development. See, e.g., National Research Council, *Urban Stormwater Management in the United States*, at 23-24 (2008). However, EPA notes that the timelines set forth in this Part do not constitute a compliance schedule, as permit compliance schedules are not allowable in New Hampshire.[23] Even where a permittee is in compliance with the requirements of Part 2.2 of the permit, it may still be in violation of Part 2.1.1 of the permit if its discharge causes or contributes to an exceedance of water quality standards. EPA will take into account a permittee's good faith efforts to comply with the requirements of this Part in its determination of appropriate enforcement action related to exceedances of water quality standards.

Finally, the Town of Durham raised a number of additional issues. With respect to certification of personnel, EPA expects that many towns will require at least some technical assistance with aspects of these requirements, but is not mandating specific credentials for those preparing these plans. Monitoring requirements are governed by NPDES regulations, not State law, and do not require certified sampling personnel or laboratories. With respect to Stormwater Utilities, see Response to Comment 1.10.c. With respect to costs, see Response to Comment II.B.

Changes to permit: The permit text of Part 2.2.2 has been revised accordingly.

Comment 2.2.2(v) from City of Manchester - In regards to impairments, water bodies in NH are considered impaired for mercury due to atmospheric deposition. This is caused by acid rain originating from the Midwest and is not caused by the communities MS4. This same rationale would also apply to aluminum in rivers where aluminum would be naturally occurring due to low pH waters dissolving this metal out from the bottom of streams. We should not be required to

[23] Compliance schedules in NPDES permits (as opposed to administrative compliance orders) are permissible only where authorized in a state's water quality standards. *See In re Star-Kist Caribe, Inc.*, 3 E.A.D. 172, 175 (Adm'r 1990), modification denied, 4 E.A.D. 33, 34 (EAB 1992). New Hampshire's water quality standards do not provide for compliance schedules.

sample for these or similar parameters or develop and implement BMPs to address these pollutants. This requirement also has implications under sections 2.3.6 and 3.0.

Comment 2.2.2(vi) from Town of Derry - How does this apply to waters impaired due to naturally occurring parameters such as iron which is commonly high in stratified drift aquifers along streams, or low pH which is typically low in rainfall and thus causing elevated metals due to the change in ionic state? A stream may be impaired for iron due to natural occurrence and not present in discharges from outfalls, whereby correcting the impairment may be infeasible.

How does this apply when the source of the impairment is from a natural source present in a discharge. For example, the source of an impairment due to either e.coli or cyanobacteria indirectly cause by phosphorus loading may be from indigenous or migratory wildlife (ducks or fur-bearing mammals).

How does this apply when the source of the impairment is non-stormwater related, regulated extensively under other programs, or from anthropogenic sources? For example, one impairment may be identified as Non-Native Aquatic Plants. The efforts to eradicate non-native aquatic plants, address the source of this impairment, and conduct outreach in "state waters" are already spearheaded by several state agencies. Another well known state and region-wide impairment is that of mercury, the source of which is atmospheric deposition and being addressed through national initiatives. Is there an exclusion for this and other impairments identified as being out of the control of or infeasible for municipalities to address?

> **Response to comments 2.2.2(v) and (vi) –** EPA recognizes that there are impairments that are not related to stormwater discharges, either because they are not present in the discharge or because they are not related to pollutants (e.g. non-native aquatic plants). MS4 permittees are not responsible for impairments that are due to natural occurrence and not present in discharges from outfalls, as in the iron example cited by the Town of Derry. The revisions to Part 2.2.2 make provisions for these situations by allowing permittees to demonstrate that their discharges are not potential contributors and thereby be excused from developing BMPs. See Part 2.2.2.a(iii). This demonstration may be relatively simple where the nature of the impairment is unrelated to urban stormwater, such as non-native aquatic plants.
>
> However, where the pollutant of concern is one that is present in MS4 discharges (e.g. aluminum), MS4 discharges may also contribute to the impairment. EPA notes that impairments for aluminum are not considered to be "naturally occurring" because the low pH conditions that lead to leaching of aluminum from soils are anthropogenic. This is the reason TMDLs have been established for a number of these impairments. Where a TMDL has established that an aluminum impairment is to be addressed through atmospheric source reduction it is addressed by Part 2.2.1. See Response to Comment 2.2.1.c. However, in the absence of a TMDL the process of Part 2.2.2 must be followed.
>
> Similarly MS4 discharges may contribute to an impairment even if the original source of the pollutant can be characterized as "natural", "non-stormwater related" or otherwise. For example, while wildlife can be a source of bacteria loading, this source is generally not a water quality concern in undeveloped natural areas. In urbanized areas, however, wildlife

excrement can accumulate on paved surfaces and be washed into man-made drainage structures that have no natural capacity to assimilate the bacteria and nutrients, thus causing or contributing to the impairment. In those cases the permittee must implement BMPs to address the pollutant.

EPA also recognizes that there are impairments from pollutants that may be present in stormwater but where the source has been identified as atmospheric deposition in a TMDL, such as mercury (addressed under the Northeast Regional Mercury TMDL) and pH (addressed under a number of TMDLs for Acid Ponds and Lakes,). These specific circumstances are addressed under the relevant TMDL and therefore part 2.2.2 does not apply to these impairments. To clarify this, EPA has included these TMDLs in Permit Part 2.2.1(c) and Appendix F with a statement that no BMPs are required in connection with these TMDLs.

Changes to permit: The permit text of Part 2.2.1(c) and Appendix F have been revised accordingly .

Comment 2.2.2(vii) from Town of Exeter – What can municipalities do to determine/ document that the impairment is coming from upstream communities? (not Phase II towns)

Comment 2.2.2(viii) from City of Nashua - It should be noted that approximately one quarter of the City is served by combined sewers. The impairment of Escherichia coli in the Nashua and Merrimack Rivers can be largely attributed to the Combined Sewer Overflow (CSOs). The City of Nashua is approximately halfway through a twelve-year EPA Consent Decree $76 million dollar CSO Program to reduce and mitigate discharges at the city's eight CSO locations. This is on top of $20 million dollars spent on several sewer separation projects mentioned earlier that came under an EPA Administrative Order. At the end of the CSO Program, improvements in the water quality of these rivers should be evident.

Response to Comments 2.2.2(vii) and (viii) – EPA recognizes that in many instances receiving water impairments are caused by multiple sources, which may or may not include MS4s discharges. In these cases the Clean Water Act requires action by all permittees that contribute to the impairment, even where their actions alone may be insufficient to results in the receiving water meeting standards. This is why the permit language covers all permittees who "cause **or contribute**" to impairments, in accordance with 40 CFR § 122.44(d)(1), rather than simply those that can be found to "cause" the impairment. This is an essential element of the Clean Water Act framework, as otherwise each discharger would want to wait to clean up its discharges until all the other sources were addressed, and no progress would be made on any source.

The Permit provides an opportunity for permittees to demonstrate that their discharges do not cause or contribute to an impairment and that BMP implementation is therefore not required. There are cases where a receiving water is impaired for reasons other than stormwater runoff, and MS4 discharges are not contributing to the problem, the revised permit language allows for an MS4 operator to make that determination, subject to review by EPA. However, for common stormwater pollutants, including nutrients, bacteria,

suspended sediments, metals and oil and grease, urban stormwater is likely to be a source and EPA presumes MS4 discharges have potential to contribute to the impairment. The mere presence of other sources, including upstream communities (MS4 or otherwise), is not a sufficient basis for concluding that a permittee's discharges do not contribute to an impairment. Similarly, in receiving waters impacted by CSOs, MS4s may still contribute bacteria even if to a lesser extent than CSO discharges.

EPA also wishes to dispel any misapprehension that the quality of discharges matters less if the receiving water itself is already impaired. In fact, where receiving waters already exceed water quality standards, they have no assimilative capacity left to absorb pollutants, so that dischargers may need to be even more diligent in reducing pollutants if the goal of attaining water quality standards is to be achieved. In both cases the permittee must address its discharge of the pollutant of concern unless it can provide a basis for concluding that its own discharges are not contributing to the problem.

Changes to permit: The permit text of Part 2.2.2 has been revised accordingly.

Great Bay Estuary

Comment 2.2.2(ix) from CLF et al. - The Great Bay estuary is one of New Hampshire's most productive and diverse habitats. Comprised of the Piscataqua River, Little Bay and Great Bay, and receiving freshwater flows from several small creeks and seven major rivers – the Oyster, Bellamy, Lamprey, Squamscott, Winnicutt, Cocheco and Salmon Falls Rivers – the estuary contains a broad diversity of habitat types, and a broad array of wildlife species. Among its dependent wildlife, the Great Bay estuary provides important habitat for numerous fish species.[fn] Many of these species, such as Atlantic cod, are important commercial fish. Others, such as a variety of herring, are forage fish that support commercial fisheries by serving as an important building block in the marine food chain. Still other species, such as striped bass and bluefish, are important recreational fisheries. In addition to finfish, the estuary supports shellfish, such as oyster and blue mussels, and other invertebrates.

Eelgrass is a cornerstone of the Great Bay estuary ecosystem, serving an important role for fish, invertebrates and birds alike. Eelgrass meadows in the estuary provide breeding grounds, nurseries, food, and cover for many fish as well as important habitat for invertebrate species. The abundant aquatic life found in eelgrass meadows, in turn, provides an important food source for birds. Eelgrass meadows also serve a critically important water quality function by stabilizing sediments and filtering contaminant. As the N.H. Estuaries Project has noted: eelgrass is "an essential habitat for the estuary, the loss of which would fundamentally alter the ecosystem of the bay." NHEP, *Environmental Indicator Report: Critical Habitats and Species* (March 2006) at 8.

[fn] The estuary is designated Essential Fish Habitat (EFH) by the National Marine Fisheries Service for numerous fish species in various life stages, including Atlantic cod, Atlantic herring, Atlantic sea scallop, haddock, pollock, red hake, white hake, window-pane flounder, yellowtail flounder, Atlantic mackerel, and bluefish. The Cocheco River, which flows through Dover into the Piscataqua River, is designated EFH for Atlantic salmon for all of its life stages. In addition to these EFH-designated species, the estuary supports numerous other fish, including striped bass, smooth flounder, rainbow smelt, Atlantic sturgeon, American shad, river herring (blueback herring and alewives), black sea bass, American eel, white perch, sea lamprey and Atlantic silversides.

The Great Bay estuary is in jeopardy as a result of increasing nitrogen concentrations. According to the N.H. Estuary Project's 2006 *State of the Estuaries* report, not only have nitrogen concentrations increased in the estuary, they have reached the same levels that have been shown to cause negative effects in other estuaries. Related to the significant problem of nitrogen pollution, the estuary has experienced major declines in eelgrass cover and biomass. As a result of these conditions, numerous waters in the estuary are known to be impaired as a result of substantial eelgrass declines and/or the violation of narrative water quality standards pertaining to nitrogen. Specifically, in August 2008, NHDES submitted to EPA a methodology pursuant to which it determined that several waters associated with the Great Bay estuary are impaired as a result of substantial eelgrass declines, and that four water bodies – the Squamscott, Lamprey, Oyster and Salmon Falls Rivers – are impaired for nitrogen. *See* Attachment 6 (NHDES, "Methodology and Assessment Results related to Eelgrass and Nitrogen in the Great Bay Estuary for Compliance with Water Quality Standards for the New Hampshire 2008 Section 303(d) List," Aug. 11, 2008). Subsequently, on December 30, 2008, NHDES published for public review and comment a document discussing numeric nutrient criteria for the Great Bay estuary, some of which demonstrate numerous additional nitrogen impairments. *See* Attachment 7.

. . . In particular, the significant threats facing the Great Bay estuary (which include stormwater-related threats); existing impairments in the estuary relative to nitrogen pollution and eelgrass losses and the imminent Section 303(d) listing of those impairments; the imminent development of numeric nutrient criteria for the estuary; and the need to develop TMDLs to ensure the attainment of those nutrient criteria; all warrant special treatment of this watershed for MS4 permitting purposes.

> **Response to comment 2.2.2(ix)** – EPA agrees that Great Bay and its associated estuarine waters are an important resource, and that the work done by NHDES and others has demonstrated that nitrogen loads are causing impairments including loss of eelgrass cover. Since the close of the public comment period on the 2008 draft, NHDES has continued its work on the Great Bay Estuary and included tributary waters on the 2010 303(d) list as impaired for Nitrogen (Total). Analysis by NHDES and others indicate that stormwater, agricultural runoff and nonpoint sources are major sources of nitrogen loads. For example, the Piscataqua Region Estuaries Partnership ("PREP") has estimated that "tributaries and runoff" contributed approximately 75% of the nitrogen load to Great Bay in 2006-2008. PREP, *Environmental Indicators Report* at NUT-1 (2009). The extent to which nitrogen loads result from MS4 discharges, as opposed to agriculture, septic systems or other sources, has not been established. Nonetheless it is clear that substantial reductions in nitrogen loads from all sources (including publicly owned treatment works and stormwater systems) will be required to adequately address nitrogen loading in the Great Bay Estuary watershed.
>
> Pursuant to 40 CFR. § 122.44(d)(1), NPDES permits must contain any requirements in addition to technology-based limits necessary to achieve water quality standards established under Section 303 of the CWA, including state narrative criteria for water quality. For the purposes of this permit, EPA has chosen to address nitrogen discharges to the Great Bay Estuary and its tributaries in an iterative approach through augmenting the general provisions related to discharges to impaired waters without a TMDL at Part 2.2.2 (which has also been revised to provide clearer guidance as to appropriate responses to impairments, as

described in the response to comments 2.2.2(i) to (iv)). In the absence sufficiently precise quantification to produce a permittee-specific load allocation these provisions do not specify a load reduction to be achieved

Changes to permit: The permit text of Part 2.2.3 has been revised accordingly

2.2.3 Discharge to a Chloride Impaired Water in New Hampshire

Comment 2.2.3(i) from Town of Amherst – New Hampshire is not a "home rule" state, municipalities lack the ability to create rules or penalties not supported by State law. The Town of Amherst's Stormwater Ordinance created in our first permit is tied by State law to the only enforcement available, "Board of Health". Will this permit hold each town in the State of New Hampshire accountable for the failures of the NH State Legislature?

What authority do you perceive a municipality has to request an existing business to supply data to the municipality on their chloride usage. We have private subdivisions which hire contractors to do their winter road maintenance. The Town has no way of recording who these contractors are or who they report to. How would you anticipate we verify the factual information we are receiving?

Comment 2.2.3(ii) from Town of Derry – This section requires that the Permittee develop and implement a written "Plan" to reduce chloride in discharges to chloride impaired surface waters whether directly or indirectly. The permit specifies that the plan must include certain "requirements" to apply to numerous non-permittee entities. It is unclear whether EPA intends this section to only apply to public and private entities that perform deicing operations on behalf of the town, or whether that includes everyone within the municipality, public and private, whether deicing public or private roads and parking lots. If it is the latter, is EPA requiring the development of a local regulatory mechanism (i.e., ordinance)? In the absence of one, how does a requirement in a permittee plan have jurisdiction over non-permittee entities?

It is neither reasonable nor practical to impose a requirement for permittees to mandate that every private entity report such information especially on such small occasions. While we recognize that published studies by the State of NH identify commercial establishments as the single highest contributor of chloride in certain MS4s, EPA should understand that plowing and deicing contractors used by commercial establishments are transient and regional. They therefore cross political and watershed boundaries in any single event, and may use deicing mixtures of varying sand to salt ratios depending on their supplier. In addition, private entities engaged in deicing operations for commercial and private clients conduct such activities on a seasonal basis to supplement their usual or primary business such as seasonal landscape and construction activities. These entities are not routinely in the process of keeping track of the specifics of their activities, nor have they undergone any specific training, therefore spreading rates (frequency and quantity) are constantly changing. We believe any data submitted to us would be minimal and without any validity, absent any State-mandated training and certification/licensing program.

The "requirement(s)" in the plan for private applicators to follow specific guidance relative to application rates and conduct certain maintenance (calibration of spreaders) is virtually impossible to enforce on the local level.

The solution may best be addressed through a state or regional training, certification, and/or licensing program, particularly in light of the transient and regional nature of applicators and their inconsistent involvement in this type of business. The program could be similar to the state's pesticide applicators licensing program. EPA should work with state agencies (NHDES) to develop and implement a state salt/deicing licensing and training program.

Comment 2.2.3(iii) from Town of Durham - Section 2.2.3 Discharge to chloride impaired water - Requires private and public owners of parking lots and roads to annually report deicing salt use applied for each storm. Unless a Stormwater Utility is in place, municipalities don't have the authority to require private entities to provide reporting information. What mechanism will be put in place to ensure useful and accurate reporting? Will the EPA or NHDES provide criteria for how this information is to be consistently and accurately gathered and reported? How will the data be used?

Comment 2.2.3(iv) from the Town of Exeter – For chloride impaired waters, we must provide a lot of information from private entities. For new construction, we can require that information, but for existing businesses, what authority do we have to require them to report that information?

Comment 2.2.3(v) from the Town of Goffstown - Requiring public and private sectors to report the amount of chloride-based deicing chemicals for each storm will be troublesome. Though the Goffstown DPW has a good grasp of our salt use, most users do not. The Town has no authority to require reporting of or enforce usage requirements of contractors working on private sites. The Town does not have the resources to adequately track all of the maintenance of private lots.

Comment 2.2.3(vi) from the Town of Londonderry – Requiring that public and private owners of parking lots and roads report to the permittee the amount of [chloride]-based deicing chemicals applied for each storm event is unrealistic. We, as the permittee, can document amounts applied for each storm event, however we have no mechanism to have the private sector report their usage. It is suggested that NHDES and USEPA develop regulations for the usage of [chloride]-based deicing chemicals. Regulations should include training, certification and reporting requirements.

Comment 2.2.3(vii) from the City of Manchester – In this section of the permit the EP A is requiring the municipalities to regulate the application of deicing chemicals on private parking lots and to gather data on the application of these products per storm per account. There are many issues that are raised based on these requirements. The information that will be provided, if any, will be merely an estimate on the part of the property owner or the contractor that is applying the chemicals. Many small commercial accounts will hire the same private landscaping or plowing contractor to do their lots. One truck full of salt may be used to treat five or more businesses. There is also the likelihood that the salt is well mixed with sand (a mix of 80/20, 70/30, 60/40 it all depends on the weather, the loader operator, etc.).

Not all applications of deicing chemicals are associated with a storm event. Melting and refreezing can cause the contractor to apply deicing chemicals and this is not considered a storm event. There is a requirement to educate users of deicing materials on BMPs (storage, use, and housekeeping) for their uses and effects on the environment. The EPA needs to define what is considered

education in regards to this requirement. The winter maintenance contractors can change each year based on bid prices. This will affect training and the effectiveness of the training. Monitoring private contractors and private property would be very difficult.

Comment 2.2.3(viii) from City of Portsmouth - The requirements of the permittees in this section are excessively burdensome and an inappropriate delegation of responsibility. The New Hampshire Department of Environmental Services (NHDES) is scheduled to issue Total Maximum Daily Load reports (TMDLs) for chloride impaired water bodies in and around Portsmouth over the next 5 to 10 years. The requirements of this draft Permit appear to be designed to shift responsibility from the NHDES to the municipality to identify the source of the impairment. It is not appropriate for the USEPA to use this General Permit to mandate that the City acquire information about the source of the chloride impairment.

Within the City of Portsmouth, there are 130 privately owned parcels of land within the eight watersheds of the surface waters that are identified as chloride impaired. In addition, a number of the major roadways within the watersheds, including Interstate 95 , are maintained by the State of New Hampshire. Requiring the City to obtain information about the quantity of chloride-based deicing chemicals applied during each storm event at each of the 130 parcels that contain private or public parking lots or roads is anticipated to cost the City $5,600 annually.

The remainder of the Chloride Impaired Water program described in this draft Permit includes requirements for those non-municipal entities to conform to specific application rates, to calibrate application equipment, to cover their piles, and a requirement to educate those entities on best management practices for deicing materials. This is a significant enforcement burden. The City of Portsmouth believes the TMDL documents, not this General Permit, should specify the corrective actions necessary and this section should be removed.

Comment 2.2.3(ix) from City of Somersworth – Under what authority are we expected to require existing parking lot owners to report how much salt they use? The City does not have any authority to go back to Owners of properties with existing parking lots and require them to report how much sand and salt they use on a seasonal basis. Certainly we could ask nicely but if they elect not to comply with our request will the City be seen as non-compliant with the permit?

We could draft rules or ordinances requesting that those properties that discharge stormwater directly or indirectly into the collection system be required to report what they discharge. If the ordinance is turned down by the governing body will the City be seen as non-compliant with the permit?

Under what authority are we expected to require existing parking lot contractors to calibrate their salt spreading equipment? (2.2.3) The City does not have any authority to require existing parking lot contractors to calibrate their salt spreading equipment. Again we could ask nicely but if they elect not to comply with our request will the City be seen as non compliant with the permit?

We could draft rules or ordinances requiring that the parking lot contractors to calibrate their salt spreading equipment. If the ordinance is turned down by the governing body will the City be seen as non-compliant with the permit? If approved it would then be up to the police to check the

Contractors to see if they have had their equipment calibrated when operating within the City limits. The Public Works staff will not have the time to check them because during storm events they will be busy. Secondly the Public Works staff will not have the authority to prevent someone from operating within the City as they do not have enforcement powers. It would appear that this section of the permit will be too cumbersome to enforce and therefore should be dropped from the permit requirements at this time.

Comment 2.2.3(x) from CEI - MS4s in NH do not have authority to regulate the use of deicing agents on private lands that discharge to the MS4 in urbanized areas.

Response to comments 2.2.3(i) to (x) –
There may be several legal avenues available for New Hampshire municipalities to implement the permit's requirements regarding salt application on non-municipal property. First, Section 31:39(I)(f) of N.H. Rev. Stat. Ann., Title III, Chapter 31 provides that towns may make bylaws for the "collection, removal and destruction of garbage, snow and other waste materials." NHDES has advised EPA as follows:

> ... DES believes that RSA 31:39, I (f) confers authority on municipalities to regulate salt application on private property. The statute authorizes towns to make bylaws for the 'removal and destruction of ... snow.' The purpose of applying salt is to remove accumulated snow from pavement surfaces. A local ordinance that imposes chloride-related obligations on public and private entities in the context of the regulation of snow removal and handling would appear to be authorized by the plain language of RSA [31]:39, I (f).

E-mail from Michael J. Walls, Assistant Commissioner, NHDES, to Carl DeLoi, EPA (Aug. 7, 2009). Second, bylaws and ordinances defining and prohibiting illicit discharges to the MS4 may be applicable (or could be amended) to place limits on the discharge of excessive amounts of chloride to the MS4. Finally, as suggested by the Town of Durham, a stormwater utility with appropriate authority could provide a mechanism to require reporting by private entities, in addition to providing a dedicated funding source for implementation of the permittee's stormwater management program. See Response to Comment 1.10.c for further information on stormwater utilities.

EPA also disagrees with the comment that these requirements represent an inappropriate assignment of responsibility to the towns and cities. As the owner and operator of the MS4s, the towns and cities are responsible for discharges of pollutants from those systems even if the original source of the pollutant is on private property. EPA has developed these permit provisions as its interpretation of the necessary steps to be taken by a municipality that is seeking coverage under the general permit to meet its obligation under the Clean Water Act. Furthermore, no municipality is obligated to seek coverage under this general permit as opposed to an individual permit. Any municipality that would so prefer (e.g., because it harbors doubts regarding its ability to implement particular conditions of the general permit) has the option to seek an individual permit that would place effluent limits on discharges of chloride from the MS4, and not contain any specific requirements regarding the sources of chloride or particular control measures. In that case, it would be up

to the permittee to decide whether to place requirements on private properties that discharge salt to the MS4, or to meet the effluent limits entirely through reductions in municipal usage. If the permittee then chose to allow private property owners to discharge salt to the MS4 without restriction, the permittee could reduce municipal salt usage accordingly to achieve the required reduction, or take any other measures that would achieve the numeric effluent limit.

EPA nonetheless recognizes that the permit provision as set forth in the 2008 draft could have been challenging to permittees, particularly the requirements that salt usage be tracked for every parking lot and every storm event. Data compiled in connection with the TMDL studies confirms the comments regarding the size of the proposed record-keeping requirement – for example, there were over 1,000 parking lots identified in the four TMDL watersheds. Therefore, EPA has revised these requirements to allow tracking of salt usage on an annual basis, and to accept summary figures from contractors that reflect salt usage in the town as a whole, rather than for each specific lot. This reporting requirement is consistent with the tracking program being developed by the UNH Technology Transfer (T2) Center, which provides a mechanism for private contractors to report their salt usage to NHDES.

EPA also agrees that state programs for training, certification and reporting may obviate the need for municipalities to develop training, certification and reporting programs. There have been a number of developments with respect to training, certification and reporting on the state level since the issuance of the 2008 draft permit, and the revised Permit incorporates these developments to the extent possible. First, the UNH Technology Transfer Center has developed a training program leading to a voluntary (at this point) certification for parking lot salt reduction. The Permit provides that municipalities may utilize training provided by UNH T2 or the equivalent in meeting the permit condition that parking lot salt applicators be adequately trained. Second, UNH T2 has developed an on-line tracking program for private contractors by which they can submit salt usage information by town to NHDES. Municipalities may require that private contractors submit usage information to the state system, in lieu of a municipal tracking system. Finally, the Permit provides that if a state program provides for training, certification and usage tracking by private contractors, then the municipality need not implement this provision of the permit.

Changes to permit: Part 2.2.3 has been moved to Part 2.2.4 and revised accordingly. Appendix H has also been revised.

Comment 2.2.3(xi) from the City of Manchester – In the first bullet item under this section, Manchester would suggest that a reference to 2.3.2.1(c)ii and iv be included to solidify in the permittee's mind that the requirement is not for residential units or developers. Also, a definition of parking lot is needed. A number of parking spaces should be spelled out. Manchester believes 10 spaces should be the minimum considered. Otherwise, every small beauty parlor, sandwich shop, dry cleaner etc. with two to nine parking spaces would be covered under the regulation. This would make it very difficult and labor intensive to implement.

Response to comment 2.2.3(xi) - The requirements of this part do not exclude all residential units or developers. Residential parking lots, generally related to condominium and apartment complexes and other multi-family dwellings, represented 20% of the parking lots identified in the four chloride TMDL watersheds. Sassan and Kahl, *Salt Loading Due to Private Winter Maintenance Practices*, Appendix J (Plymouth State Univ., 2007). Parking lots are the source of a significant percentage of the total salt load to watersheds in New Hampshire; for example, parking lots represented 44% of the load to Beaver Brook in 2005. NHDES, *Total Maximum Daily Load (TMDL) Study for Waterbodies in the Vicinity of the I-93 Corridor from Massachusetts to Manchester, NH: Beaver Brook in Derry and Londonderry, NH*, at 12 (2008). Excluding residential parking lots regardless of size would undermine achievement of the necessary salt reductions.

EPA agrees that the term "parking lot" should be defined. EPA has reviewed the available data regarding parking lot sizes that was developed in connection with the four TMDL watersheds. See Sassan and Kahl, *Salt Loading Due to Private Winter Maintenance Practices*, Appendix J (Plymouth State Univ., 2007). Parking lots of 0.1 acre or less, approximately equivalent to the proposed ten-space threshold, constituted less than 10 percent of the lots identified, and under 1.5% of the total parking lot area. A ten-space minimum therefore appears to represent a reasonable threshold that will not undermine salt reduction goals, and the Permit includes a size threshold of 10 or more spaces.

Changes to permit: Part 2.2.3 has been moved to Part 2.2.4 and revised accordingly

Comment 2.2.3(xii) from CEI - Many of the large users of deicing agents may not discharge through the MS4 and these requirements would not address this chloride contribution. A regional permit process administered by EPA may be more effective in the reduction of chlorides from private land owners within the watershed of impaired waters.

Response to comment 2.2.3(xii) - EPA agrees that there are users of deicing agents that may not discharge through the MS4. Those discharges are not directly addressed by the MS4 permit. Any cities and towns that implement chloride reporting and training requirements under the authority of NH Rev. Stat. Ann. Section 31:39(I)(f) may choose to apply these requirements town-wide and therefore capture users that do not discharge through the MS4, but that is not required by this permit. EPA also notes that requirements for training of operators performing winter maintenance on parking lots that discharge to the MS4 are likely to have carryover effects, as contractors who work on such lots are likely to also perform work on areas that do not discharge to the MS4; similarly, reporting requirements that allow reporting of town-wide salt usage will capture MS4 and non-MS4 discharges.

In suggesting the EPA administer a "regional permit process", EPA assumes that the comment is referring to EPA's authority under section 402(p)(2)(E) and (6) of the Clean Water Act and 40 CFR § 122.26 (a)(9)(i) (C) and (D) to designate additional stormwater discharges as requiring NPDES permits where the Regional Administrator determines that: (C) stormwater controls are needed for the discharge based on wasteload

allocations that are part of "total maximum daily loads" (TMDLs) that address the pollutants of concern, or (D) the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This authority, generally referred to as EPA's "residual designation authority", has been exercised by Region 1 to address discharges from properties exceeding threshold levels of impervious area in the Long Creek watershed, Maine and in the towns of Bellingham, Franklin and Milford in the Upper Charles River watershed, Massachusetts. See USEPA, Final Residual Designation for Long Creek (2009); USEPA, Preliminary Residual Designation for Charles River (2008). To address stormwater-related chlorides discharges to impaired waters in New Hampshire EPA is pursuing the controls and approaches required by this permit at this time rather than the use of residual designation authority. EPA may choose to revisit this approach in the future.

Changes to permit: none.

Comment 2.2.3(xiii) from the City of Manchester - Stevens Pond is one of the bodies of water that is impaired for chlorides and it receives direct discharges from Interstate 93 which is owned and maintained by the NH Department of Transportation (DOT). Section 7.0, Requirements for Transportation Agencies has no mention of chloride abatement. Can it be assumed that the EPA is expecting cities and town like Manchester to resolve the chloride issues created by the NH DOT? The NH DOT should be required to reduce the chloride loadings from Interstate 93 to Stevens Pond by placing language in section 7.0 similar to this language.

Response to comment 2.2.3(xiii) - Part 2.2.3 (now 2.2.4) of the permit applies to NHDOT. Part 6.0 of the Permit states, "All requirements and conditions of this permit apply with the following exceptions," with limited exceptions related to content of public education programs under 2.3.3, use of agency procedures and policies in lieu of bylaws or ordinances under 2.3.5 and 2.3.6, and requirements in lieu of assessment of local ordinances under 2.3.6.5. Part 6.0 does not excuse transportation agencies from compliance with part 2.2.4. The permit does require that the cities and towns, as well as NHDOT, reduce loadings from their own systems to the maximum extent practicable, to assure that they do not cause or contribute to water quality standards violations, and, if applicable, to assure compliance with TMDL waste load allocations. Phosphorus reduction requirements for Stevens Pond (see Appendix F) are applicable to both NHDOT , the City of Manchester and any other non traditional MS4 discharging to Stevens Pond. The nutrient TMDL does not differentiate between specific watershed sources and therefore the relative percent reduction needed from all watershed sources has been assigned to each individual source. See Section A b. for additional discussion of phosphorus TMDL requirements.

Changes to permit: Part 7.0 has been moved to Part 6.0, Appendix F has been updated accordingly.

Comment 2.2.3(xiv) from Town of Durham - Has the EPA and NHDES evaluated the State of Minnesota guidance criteria (reference on Page 12) for appropriateness in New Hampshire?

Comment 2.2.3(xv) from the City of Manchester – The EPA is also requiring all public and private applicators to use application rates that are at least as stringent as those specified in the State of Minnesota guidance documents. The concern here is with liability. If the municipalities define application rates and somebody is injured by way of an unsafe surface, will the injured part or the private property owner issue a lawsuit to that municipality because they defined their application rate for the deicing chemicals?

Response to comment 2.2.3(xiv) and (xv) - EPA has reviewed the development of the Minnesota guidance criteria and agrees that a requirement that application rates be at least as stringent as those specified is not warranted at this time. EPA notes that the Tables themselves state, "These rates are not fixed values but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience." Further, EPA is aware that these application rates, while included in the New Hampshire Stormwater Manual, Volume 2, p. 53 (2008), are being evaluated in connection with guidance being developed in New Hampshire by UNH. Therefore EPA has removed the requirement to use application rates at least as stringent as those specified, replacing it with a general recommendation that guidelines be adopted as part of an overall Salt Reduction Plan. EPA notes that the central message of these Tables – that salt application be tied to specific storm conditions that include measurement of pavement temperature and trends – is essential to effective control of salt usage. EPA will not opine on municipal tort liability, as it is a matter of state law and outside the scope of the NPDES permitting process.

Changes to permit: Part 2.2.3 has been moved to Part 2.2.4 and revised accordingly.

Comment 2.2.3(xvi) from the City of Manchester – The suggestion is that the EPA, the NHDES, and the NH DOT work together to develop a statewide program on the proper application of deicing chemicals. Workshops can be held to educate the applicators. A public service message can be run to educate the general public on the impact that deicing chemicals make on the environment and the need to reduce the use of these chemicals. The general public also needs to be educated on safe driving practices during storm events. The driving public expects roads free of snow and ice and they do not expect to slowdown. This year in NH there was some major traffic accidents associated with winter storm events.

Response to comment 2.2.3(xvi) – EPA agrees that broader education and training programs should be developed and applauds the work done by NHDES and the UNH Stormwater Center on this issue since the 2008 draft was issued. This work includes development of training programs and a certification process, and a public outreach and education program spearheaded by NHDES. EPA agrees that education of the general public is important for both protection of the environment and for public safety.

Changes to permit: none.

Comment 2.2.3(xvii) from Town of Amherst – Did EPA take into consideration, the increased workload this will place on an already overburdened office staff? I realize this is not EPA's

problem, but you are requiring us to produce something we may not be able to deliver, and then fining us if we do not deliver.

Response to comment 2.2.3(xvii) – EPA understands this comment as referring to the 2008 draft requirements to require tracking of salt usage by private contractors for every storm event and every parking lot. As discussed in the Response to Comment 2.2.3 to (x) above, the Permit has been revised to allow use of the state tracking system, rather than requiring development of a tracking system at the municipal level. EPA believes this change will significantly reduce the workload associated with this aspect of the permit. Municipalities are still responsible to implement a regulatory mechanism requiring such reporting (unless excused from this requirement upon passage of an equivalent state program) and remain responsible to track and report their own salt usage on an annual basis.

Changes in permit: none.

Comment 2.2.3(xviii) from UNH – This section requires the permittee to record the amount of chloride-based deicing chemicals applied for each storm event. That is a time consuming and difficult requirement. Because storm events vary in intensity and type(s) of precipitation, it is questionable whether recording quantities per generic storm even have value. Consider deleting this first bullet for individual storm even reporting and include only the second bullet for total annual quantity reporting.

Comment 2.2.3(xix) from Town of Derry – The definition of "storm event" is too broad to include "any event that triggers the use of the deicing chemicals. As written, an overnight freezing of minor snowmelt during the prior day could "trigger" a private contractor, store owner, or any level employee of any private or commercial establishment located within an MS4 to place varying amounts as low as a few handfuls of deicing chemicals at the entrance to an establishment. The triggering even could be more specific to include only those events which required commercial application (by a "licensed" or "Certified" applicator applying a specified threshold amount of deicer (i.e. per cubic yard or ton of sand/salt mixture).

Response to comments 2.2.3(xviii and xix) – See Response to comments 2.2.3(i) to (x) for discussion of modification of the reporting requirement to require annual totals, rather than tracking by storm event. Under the revised language the term "storm event" is no longer used in the Permit. Therefore no definition of the term "storm event," revised or otherwise, is provided.

Changes to permit: none.

Comment 2.2.3(xx) from Town of Durham - Will the EPA and NHDES provide guidance or requirements relative to what chloride impairment corrective measure to implement?

Response to comment 2.2.3(xx) – Since the 2008 draft was released there has been substantial work done by NHDES and other New Hampshire agencies to develop guidance for municipalities regarding corrective measures for chloride impairments.

The UNH Technology Transfer Center has developed an array of fact sheets and model contracts available at its website (http://www.t2.unh.edu/green-snowpro-certification) and conducts training for plow and salt truck operators. In addition, funding and technical assistance has been provided to the four TMDL communities for development and implementation of their Salt Reduction Plans, which will serve as a model for chloride impairment corrective measures. In revising the 2008 draft language EPA has not required specific corrective measures in order to allow MS4 communities some flexibility to select the most appropriate measures for local conditions.

Changes to permit: Part 2.2.3 has been moved to Part 2.2.4 and revised accordingly.

Comment 2.2.3(xxi) from NHDOT - The Department's roadway system is very static. Many of our roads have been in the same location since the 1930's with little change and as result the discharges from those pavement surfaces have not changed in a very long time. When a change is made it usually requires coordination with the State Legislature, the General Public and State and Federal Regulators to ensure that all issues are identified and possible consequences are addressed. A Total Maximum Daily Load (TMDL) serves a similar function involving all parties and investigates the root cause and specific conditions that caused impairment of a water body. As a result, the implementation of the TMDL load reductions is usually well vetted through the contributors and takes into account the social and economic consequences. However, it seems this permit has skipped over the TMDL process and prescribed an implementation plan for chloride impaired waters with little or no public input, and little regard for social and economic consequences and public safety. EPA is trying to apply a single winter maintenance standard to all paved surfaces in the urbanized areas, which is completely inappropriate when considering the wide spectrum of uses, from residential streets to interstate highways. Chloride impairments should not be treated outside the 303(d) process. Each impaired watershed should have a TMDL completed to determine the responsible parties, sources of the loads and required load reductions. Each chloride-impaired watershed should have a well thought out Implementation Plan based on a TMDL; not based on untested guidance from another state with unknown consequences.

Response to comment 2.2.3(xxi) – EPA notes that the NHDOT roadway system is currently undergoing a major expansion with respect to I-93. The Department also conducts a large number of construction projects every year. Therefore EPA does not agree that the NHDOT MS4 is "static".

EPA agrees that each impaired watershed should have a TMDL completed; however, neither the CWA nor EPA's governing regulations allow EPA to defer action until all relevant TMDLs are completed before placing the necessary effluent limitations (in the form of best management practices or otherwise) into pending permits. See *In re Upper Blackstone Water Pollution Abatement District*, 14 E.A.D __, 38-42 (2010). Therefore chlorides impairments will necessarily be addressed outside the TMDL process.

EPA has revised the Permit requirements to provide greater flexibility to MS4 operators to develop programs tailored to their particular conditions, as discussed in Response to Comment 2.2.3 (xiv) and (xv).

Changes to permit: none.

Comment 2.2.3(xxii) from CLF et al. - Section 2.2.3 of the draft permit must be amended to make clear that all discharges to chlorides-impaired waters – including those for which EPA has recently approved TMDLs – must comply with the provisions of Section 2.1 and must not cause or contribute to the violation of water quality standards pertaining to chlorides. In other words, this section must be amended to make clear that the more specific provisions pertaining to chlorides-impaired waters to do not supplant more general provisions pertaining to impaired waters, including the provisions of Section 2.1 and the general, yet critically important, prohibition against causing or contributing to water quality violations. These amendments will ensure consistency between Sections 2.2.1 and 2.2.3.

The provisions set forth in Section 2.2.3(a) appear to be tailored more specifically for traditional MS4s (i.e., the municipalities affected by the recently approved chlorides TMDLs), as opposed to the N.H. Department of Transportation. To ensure that discharges do not cause or contribute to water quality violations, these provisions must be amended to require affected MS4s to specifically address the manner in which they are addressing chlorides discharges associated with new or anticipated future development. In doing so, entities seeking coverage under the permit must assess new or increased chlorides loads associated with new private development which will discharge chlorides to chlorides-impaired waters by means other than through the regulated entities' MS4.[fn] This requirement is essential – and requires detailed analysis by the MS4 entities and EPA – in light of the fact that the chlorides TMDLs allocate no chlorides pollutant loading to future development. In addressing this issue, MS4s must be required to establish, describe in detail, and implement a program to themselves further reduce chlorides loads to negate increases caused by new private development, to ensure that TMDLs for the chlorides-impaired waters are satisfied.

To ensure that discharges do not cause or contribute to water quality violations, and that TMDLs are satisfied, Section 2.2.3(a) must be further amended to require dischargers to develop – and affirmatively propose as part of the written plan referenced in the draft permit – a specific schedule for implementation of their TMDL compliance plan, and implementation that adheres to that schedule.

Finally, should discharges from I-93 and other state roads to chlorides-impaired waters be authorized by this permit, as opposed to an individual or alternative permit, this section must be amended to (1) clarify that it also applies to NHDOT, and (2) include provisions pertaining more specifically to the operation of Interstate 93 and state roads.[fn] Such provisions must include BMPs and other actions to be taken by NHDOT to satisfy the TMDLs and water quality standards, including a specific implementation schedule.

[fn] We interpret Section 2.2.4 of the draft permit, pertaining to "New or Increased Discharges to Impaired Waters," as incorporating chlorides pollution from new development discharged to impaired waters through a regulated entity's MS4. Accordingly, these specific comments relate to new or increased chlorides pollutants loads to impaired waters by means other than the regulated entity's MS4.

[fn] These comments are in no way intended to suggest that the commenters believe the Small MS4 General Permit is the appropriate mechanism for EPA to consider and authorize these discharges.

Response to comment 2.2.3(xxii) – EPA has made a number of permit revisions to clarify the relationship between Part 2.1's general water quality requirements and the requirements for impaired waters pursuant to Part 2.2. See Response to Comments 2.1.1.a(ii) and Part 1.3. EPA has designed the planning and implementation requirements of Part 2.2 to meet the requirements of Part 2.1 with respect to the appropriate action to be taken for discharges to impaired waters. While EPA does not agree with the commenter's characterization of Part 2.2 as "supplanting" Part 2.1, EPA does intend that Part 2.2 provide the framework for compliance with Part 2.1.

EPA does not agree that the permit must require MS4s to reduce their loads, above and beyond the load reduction set forth in the TMDL, in order to account for new private development that does not discharge through the MS4 and did not receive an allocation in the TMDL WLA or LA. EPA's regulations clearly require that permit limits be "consistent with the assumptions and requirements of any approved wasteload allocation". 40 CFR § 122.44(d)(1)(vii)(B). For non-TMDL discharges, EPA is not requiring permittees to conduct analyses to determine the necessary load reduction, whether including new non-MS4 private development or otherwise.

Specifically with respect to chlorides, the permit requires that the overall plan for chloride reductions result in net decreases to chloride use after taking into account any development that would increase MS4 discharges, and that the plan demonstrate that reductions set forth in the relevant TMDL, where available, will be met. The revised permit also sets a schedule for implementation. This requirement is equally applicable to NHDOT and traditional permittees. (This provision unambiguously applies to NHDOT, as the provisions for Transportation Agencies at Part 6.0 specifically state that "[a]ll requirements and conditions of this permit apply" with a clearly limited set of exceptions.) With respect to the request for conditions specific to I-93, EPA is not including within a general permit requirements that are specific to a particular road. Such requirements are applied through the more general condition in Part 6.0.

Changes to permit: none.

2.2.4 New or Increased Discharges to Impaired Waters

Comment 2.2.4(i) from Town of Durham – This section does not define "Increase in discharge" clearly. Is an increased discharge based on a specific rainfall frequency, rate or volume? A stormwater system that is designed to manage a 25 year storm event will not as easily manage a 100 year or 500 year event.

Comment 2.2.4(ii) from Town of Durham – Is the EPA or NHDES prepared to receive and respond to submissions from every proposed development regardless of size? This section essentially requires all developments to provide a design report for review by the EPA. Does Section 2.2.4.c also pertain to increased discharges?

Comment 2.2.4(iii) from CLF et al. - We strongly support provisions in the draft permit requiring permittees to provide EPA and NHDES advance notice of a new or increased discharge from MS4s. We are concerned, however, that Section 2.2.4 of the draft permit, as currently drafted, is insufficient for ensuring that new or increased discharges to impaired waters will not cause or contribute to water quality standards.

First, Section 2.2.4(a) should be amended to require permittees to demonstrate – prior to commencement of a new or increased discharge – that a new or increased discharge will not only satisfy antidegradation requirements and an associated alternatives analysis, but also that it will not cause or contribute to the violation of other water quality standards. This amendment is necessary to ensure compliance with the central tenet of the Clean Water Act – that permitted discharges shall not cause or contribute to water quality violations.

Second, we are concerned with automatic-authorization provisions contained in Sections 2.2.4(a), (c), and (e), each of which automatically authorizes a new or increased discharge in the event EPA does not render a determination with respect to such discharges within thirty days of having received information relative thereto. To ensure that new or increased discharges that cause or contribute to water quality violations are not authorized, the draft permit must be amended to eliminate these automatic-authorization provisions and to instead require EPA to review, and render a determination on, proposed new or increased discharges.

Third, Section 2.2.4(d) contains certain notice provisions, requiring permittees to make available to the public the information it submits to EPA relative to new or increased discharges. To ensure that interested parties receive actual notice of such submissions, we request that the permit require regulated entities to provide specific notice – of its submission to EPA of new-or-increased-discharge information – to any persons having requested such notice at any time, and to any persons having commented on a regulated entity's NOI, SWMP or other MS4 submissions.

Finally, Section 2.2.4(e) requires that new or increased discharges receive certification from NHDES that the discharge will not violate water quality standards, including antidegradation, and that prior to commencing the discharge, the permittee must submit such certification to EPA. It further states: "Such discharges will become authorized thirty (30) days after permittee's notification unless EPA notifies the permittee that it has failed to demonstrate compliance with the antidegradation provisions of the surface water quality standards." As stated above, and in light of the prohibition against causing or contributing to water quality violations, we strongly urge EPA to eliminate the "automatic authorization" approach set forth in this provision and, instead, ensure that it will actually review and render a determination on proposed new or increased discharges. [fn. In amending these provisions, EPA also should remove the 30-day time limit for its review.] We also urge EPA, in reviewing state certifications, to not only assess whether the permittee has complied with antidegradation, but also whether it has complied with other state water quality standards.

> **Response to comments 2.2.4(i) to (iii)** - EPA recognizes that the 2008 draft did not include a definition of an "increase in discharge." The Permit Part is intended to provide for compliance with the antidegradation requirements of the New Hampshire water quality standards, NH Env-Wq 1708. Therefore, EPA looks to NHDES to define the trigger for

antidegradation review. EPA notes that New Hampshire's antidegradation regulations do not use the term "new or increased discharge", but apply in relevant part to:

- Any proposed new or increased activity, including point source discharges of pollutants, that would lower water quality or affect the existing or designated uses; and
- Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities

NH Env-Wq 1708.02(a)-(b).

EPA notes the wide disparity in views of this provision expressed by the commenters. The Town of Durham, on the one hand, suggests that the submission and review of stormwater management design reports for every development in every MS4 community would represent an unmanageable burden for EPA and NHDES. CLF, on the other hand, suggests that the submission and review requirements are not enough, because they do not require EPA to affirmatively render a determination as to each and every proposed new or increased discharge. EPA has carefully reviewed the provisions as set forth in the 2008 draft and has made a number of revisions in the new Draft Permit to ensure that this section meets all applicable requirements.

First, EPA notes that this Permit Part addresses antidegradation requirements for unimpaired waters as well as requirements related to impaired waters, and therefore should not have been entitled "New and Increased Discharges to Impaired Waters" or located in the impaired waters section of the 2008 draft permit. These provisions have been moved to Part 2.1.2 in the new Draft Permit and retitled.

EPA agrees that the review workload imposed by this requirement may be extensive in some cases but has concluded that submission of information to NHDES is required under NH Env-Wq. 1708.03, Submittal of Data, which lists information that applicants must provide in connection with antidegradation determinations. As the NOI requirements in the permit do not provide sufficient information to satisfy the information requirements of 1708.03, individual submissions for development projects are required. EPA also agrees that a specific determination is required under the antidegradation regulations for determinations regarding high quality waters, pursuant to NH Env-Wq. 1708.07. The Permit therefore requires that permittees obtain a determination from NHDES that activities subject to this Part satisfy state antidegradation requirements. However, EPA does not agree that EPA must also conduct that review and determination; review by NHDES is adequate and consistent with the NH water quality standards. NHDES is in the process of developing guidance for demonstrating compliance with Part 2.1.2.

EPA has also corrected and clarified certain wording from the 2008 draft. In the 2008 draft Part 2.2.4(a) the requirement that submissions "includ[e] an alternatives analysis" was incorrect, as alternatives analyses are required only where there is "significant" lowering of water quality. NH Env-Wq. 1708.07(c). That language is deleted in the new Draft Permit. In the 2008 draft, Part 2.2.4(b)(iii), the standard set forth is that applicable to "new dischargers" as defined under 40 CFR § 122.2 and is not the applicable standard to increases

in discharges (including new outfalls) from existing systems. This paragraph has been revised to incorporate the antidegradation standard that requires that there be no net increase in pollutant loads when the discharge is to an impaired water. Requirements for "new dischargers" under 40 CFR § 122.2 have been incorporated into the new Draft Permit in Parts 5.1.4 and 6.4.

EPA also notes that the 2008 draft's reference to state "certification" in Part 2.2.4(e) needlessly confused the requirements of this permit with the state section 401 water quality certification. This Permit part addresses only antidegradation requirements and the revised Permit language requires an antidegradation determination only, eliminating the use of the term "certify" and "certification" in this section. EPA disagrees with the suggestion that the process in this Part should also be used to assess compliance with state water quality standards; these provisions provide a process for addressing antidegradation requirements specifically. Other permit parts address compliance with water quality standards more generally, including Parts 2.1.1, 2.2.1 and 2.2.2, and EPA expects the state to provide a certification that the permit as a whole satisfies the requirements of the state water quality standards as required by CWA Section 401.

EPA does not agree with the comment that permittees should be required to demonstrate (prior to commencement of a new or increased discharge) that a new or increased discharge will not only satisfy antidegradation requirements, but also that it will not cause or contribute to the violation of other water quality standards. These are separate issues. Permit Part 2.1.1.a already prohibits discharges from causing or contributing to violations of water quality standards.

EPA agrees that automatic authorization of new or increased discharges upon the expiration of a fixed period of time is not consistent with the New Hampshire water quality standards. This provision has been removed.

EPA does not agree with the comment that the permit should require permittees to provide specific notice of submissions of antidegradation-related data to particular persons. NH Env-Wq 1708.11 requires NHDES to provide the opportunity for public comment on preliminary decisions to allow any significant lowering of water quality. The New Hampshire water quality standards do not require public notice or comment for other aspects of the antidegradation review process, and any benefits of providing notice to particular persons for each individual new or increased activity do not justify the additional burden on municipalities.

Changes to permit: Part 2.2.4 deleted and replaced with new Part 2.1.2 and revised accordingly.

Comment 2.2.4(iv) from CLF et al. - We view this section of the draft permit to be critical to ensuring compliance with water quality standards. The proposed widening of Interstate 93 between Salem and Manchester illustrates the importance of this section, and of ensuring a meaningful opportunity for EPA to review and render an informed determination relative to significant new and increased discharges, and for the public to understand and comment on such

proposed discharges. Specifically, NHDOT has proposed to widen – from a total of four lanes, to a total of eight lanes – a 19.8 mile segment of highway, portions of which discharge to four water bodies – Beaver Brook; Policy/Porcupine Brook; the Northern Tributary to Canobie Lake; and Dinsmore Brook, which is a tributary to Cobbetts Pond – that are impaired for chlorides-standard violations, and for which chlorides TMDLs have been approved. The wasteload allocations in these TMDLs establish that chloride pollutant load reductions from I-93 and other state roads are necessary to eliminate these impairments and attain water quality standards. The proposed widening project – by more than doubling the amount of impervious surface associated with the highway – will result in a significant increase in stormwater discharges and, likely, new discharges within the meaning of the permit. In light of existing impairments, and to ensure compliance with the Clean Water Act and its implementing regulations, this major proposed widening – to the extent it is subject to this permit, as opposed to an individual or alternative permit process – must be subject to a process that includes: (1) detailed review by EPA of all required submissions, including but not limited to state certification, pertaining to the proposed new or increased discharges associated with the proposed highway widening and whether such discharges will cause or contribute to water quality violations and satisfy antidegradation and TMDL requirements; (2) adequate time for EPA's review, absent an artificial 30-day deadline; (3) the opportunity for public review of all materials submitted to EPA, and for comment for EPA's consideration; and (4) an affirmative decision by EPA whether the proposed widening and its associated discharges will meet all water quality requirements, including water quality standards, antidegradation, and TMDL requirements. We urge EPA to amend the permit to ensure that such a process occurs for all significant new or increased discharges.

> **Response to comment 2.2.4(iv) –** EPA agrees that the proposed widening of Interstate 93 is likely to trigger antidegradation review under the permit. EPA also agrees that the WLAs in the chlorides TMDLs have established the need for chloride pollutant load reductions from NHDOT roads to eliminate the chloride impairments and attain water quality standards. As indicated in the discussion at Response to Comments 2.2.4(i) to (iii), while the permit no longer requires automatic submission of all individual development projects to EPA for review prior to commencement of discharge, NHDOT must comply with Part 2.1.2. and both EPA and NHDES reserve the right to require additional information or analysis, to require additional BMPs or to require an individual or alternative general permit for such discharges.
>
> *Changes to permit: Part 2.2.4 deleted and replaced with new Part 2.1.2 and revised accordingly.*

Comment 2.2.4.a(i) from Town of Londonderry - Requiring the permittee to notify USEPA and the state prior to commencing a new discharge should also apply to private entities that have the same potential to discharge to impaired waters. As indicated under 1.10.2, the NHDES, USEPA and the permittee should work together to identify impaired waters and concentrate on identifying and possibly eliminating the source of those impairments and future potential impairments.

Response to comment 2.2.4.a(i) – While EPA recognizes permittees' desire to have private entities subject to the same requirements as MS4 operators, private discharges are not regulated through this permit, which only applies to small MS4s. For stormwater requirements applicable to private stormwater discharges, see 40 CFR §§ 122.26(a)(6), (9). EPA agrees that addressing impaired waters requires efforts by EPA, NHDES and permittees, and believes that the requirements of this permit are an important component of such efforts.

Changes to permit: none.

Comment 2.2.4.a(ii) from Town of Derry – This section states that for "New discharges to impaired waters" the permittee must "prevent all exposure to stormwater of the pollutants for which the waterbody is impaired". Preventing all exposure to chloride is virtually impossible as it is a necessary for public safety, it is placed only in areas where snow and ice (i.e. stormwater) will occur, and it is somewhat ubiquitous in the environment. It is also unreasonable to require this for naturally occurring pollutants or impairments out of any control of the permittee (pH, mercury). In addition, "preventing" nonpermittees (private or commercial entities) from contributing chloride is currently impossible to do. Relative to chloride, it would be more reasonable and logical to reword this section that the permittee shall minimize to the maximum extent practical, the permittees contribution of the pollutant that could potentially contribute to the impairment. And shall minimize those of others through outreach and education efforts as dictated in other areas of the permit. For other impairments such as mercury or pH, an exclusion would be most appropriate.

Response to comment 2.2.4.a(ii) – EPA recognizes that "preventing exposure" is inapplicable to many stormwater pollutants, including chloride, and that the permittee will therefore need to rely on the provisions of subparagraph (iii) and show that no net increase in chloride (or other pollutant) load to the waterbody will occur. EPA notes that permittees must require development projects discharging to waters impaired for chlorides to minimize their use of chlorides. For some other impairments such as pH and mercury, the permittee should be able to demonstrate that there will be no "exposure to stormwater of the pollutants" in any standard development, and it is these types of pollutants that this specific provision is intended to address.

Changes to permit: Part 2.2.4 deleted and replaced with new Part 2.1.2 and revised accordingly.

Comment 2.2.4.e(i) from NHDOT - It is unclear how the Section 401 process works with this 402 permit. If a project has a 401 Water Quality Certification does the permittee need to apply to EP A for the same discharge? The process for new discharges that do not require 401 Certification is very vague, open to interpretation and open to legal challenges. In addition, Antidegradation provisions are not defined in the regulation.

Comment 2.2.4.e(ii) from Town of Durham – Does this section require a 401 Water Quality Certificate for all developments?

Response to comments 2.2.4.e(i) and (ii) – EPA agrees that the 2008 draft did not clearly indicate how the Section 401 process works with this permit.

This Permit part addresses antidegradation determinations and is not a requirement for a specific Section 401 water quality certification for all developments. The language regarding "certification" in the 2008 draft was misleading and was not intended to invoke the Section 401 process. See Response to Comments 2.2.4(i) to (iii). EPA has requested that the State of New Hampshire issue a Section 401 Water Quality Certification for this NPDES (CWA Section 402) Permit that covers the permit as a whole and expects to receive such Certification. EPA notes, however that the Permit allows NHDES to imposed more stringent requirements when necessary to protect water quality, including additional requirements on new and increased discharges. See Part 2.1.2; Part 3.1.

Changes to permit: Part 2.2.4 deleted and replaced with new Part 2.1.2 and revised accordingly.

2.3 Requirements to Reduce Pollutants to the Maximum Extent Practicable

Comment 2.3.b(i) from Town of Durham – Section 2.3 indicates that the "requirements" to reduce pollutants to the Maximum Extent Practicable (MEP) approach is an iterative process. This section is vague and lack actual requirements. Without specific requirements an iterative process implies a moving target of regulation.

Comment 2.3.b(ii) from Town of Hollis – In Section 2.3 of the draft permit, EPA states that "the permittee shall reduce the discharges of pollutants from the MS4 to the **maximum extent practicable**." This phrase is not defined, but can be broadly interpreted. Can EPA clarify this term? How can a community demonstrate that they have made a good faith effort to comply with this requirement?

Response to comments 2.3.b(i) and (ii) – EPA recognizes that the definition of MEP is not precise. In formulating the regulations for the Phase II MS4 program EPA intentionally elected not to provide a precise definition in order to allow maximum flexibility in MS4 permitting. As EPA stated in the preamble to the Phase II regulations,

> Commenters argued that MEP is, as yet, an undefined term and that EPA needs to further clarify the MEP standards by providing a regulatory definition that includes recognition of cost considerations and technical feasibility. Commenters argued that, without a definition, the regulatory community is not adequately on notice regarding the standard with which they need to comply. EPA disagrees that affected MS4 permittees will lack notice of the applicable standard. The framework for the small MS4 permits described in this notice provides EPA's interpretation of the standard and how it should be applied.
>
> EPA has intentionally not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in

> stormwater pollutants on a location-by-location basis. EPA envisions that this evaluative process will consider such factors as conditions of receiving waters, specific local concerns, and other aspects included in a comprehensive watershed plan. Other factors may include MS4 size, climate, implementation schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, geology, and capacity to perform operation and maintenance.
>
> The pollutant reductions that represent MEP may be different for each small MS4, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each permittee will determine appropriate BMPs to satisfy each of the six minimum control measures through an evaluative process. Permit writers may evaluate small MS4 operator's proposed stormwater management controls to determine whether reduction of pollutants to the MEP can be achieved with the identified BMPs. 64 Fed. Reg 68722, 68754 (December 8, 1999)

On the other hand, where EPA has determined the practices that represent MEP for all permittees, these are described as requirements. Thus, where a practice or standard is applicable to all MS4s, EPA has included specific requirements, as the commenter suggests in Comment 2.3.b(i).

EPA agrees that to a certain extent MEP does imply a dynamic process in the permit that adapts to changing conditions, improving BMP effectiveness and increasing operator capabilities. Indeed, EPA believes that this approach is consistent with many comments from permittees, which encourage EPA to build on prior efforts and allow communities to scale up their programs over time. This is essentially what the "iterative process" of MEP envisions. Again, as EPA explained in the preamble to the Phase II regulations:

> EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards.

EPA believes that the MEP standard is given adequate content by the specific provisions of Parts 2.3.2 through 2.3.7. No further definition is thus required. EPA has therefore clarified this section by explicitly referencing MEP to the specific requirements of Part 2.3 of the permit. Permittees' compliance with Part 2.3 (and their "good faith effort" pursuant to comment 2.3.b(iii)) will be assessed by their compliance with these specific requirements.

Changes to permit: Part 2.3.b has been revised accordingly.

2.3.2 Public Education and Outreach

Comment 2.3.2(i) from Town of Amherst - Will EPA be offering sample education material? I have an extremely limited staff, and in these difficult economic times, I am on a very tight budget.

The timing of the draft release and the Towns budget cycle (July -June and already set to the middle of 2010) makes it impossible to get funding to meet these needs for another eighteen months. If private industry turns a deaf ear on my education attempts, what will EPA' s expectation be as far as goal achievement?

> **Response to comment** – EPA has developed a wide range of sample education material that can be used and customized by municipalities as appropriate for particular issues relevant to the MS4. EPA's Nonpoint Source (NPS) Outreach Toolbox, http://cfpub.epa.gov/npstbx/index.html, is intended for use by state and local agencies and other organizations interested in educating the public on nonpoint source pollution or stormwater runoff. In addition to guidance on creating an effective outreach campaign, the Toolbox includes more than seven hundred viewable and/or audible TV, radio, and print ads and other outreach products to increase awareness and/or change behaviors across six common topics (General Stormwater and Storm Drain Awareness, Household Chemicals and Waste, Lawn and Garden Care, Motor Vehicle Care, Pet Care and Septic System Care), along with links to collections of NPS and stormwater outreach and educational products compiled by states and other organizations. The Permit has been modified to add a reference to these materials.
>
> *Changes to permit: The permit text of Part 2.3.2.1.b.has been revised accordingly.*

Comment 2.3.2(ii) from City of Portsmouth - Current studies show that the majority of the public does not understand how stormwater can become polluted and how it can contribute to water quality issues. Most of the public still believes that catch basins in their roads transport stormwater to a treatment facility prior to discharge. In addition, most people do not understand the concept of a watershed, or the concepts related to the water cycle (rainfall, runoff infiltration, and evapotranspiration). A significant amount of awareness-raising must be done across the United States prior to an individual community education/outreach campaign in order to truly stimulate behavior changes in the general public. The City of Portsmouth, like many other municipalities, sees a large influx of visitors during the tourist season and thus education must extend well beyond the immediate locality to be truly effective.

The City supports the requirements to provide public education materials related to the four sectors identified in the General Permit, however it is beyond any individual municipality means to conduct a truly meaningful effective campaign. A national education program, such as that promoted by Keep America Beautiful in the 1970's, could provide a consistent and transferable message that regulated MS4s could use in developing further promotional materials. At a minimum, the USEPA should provide a template or umbrella program for education of stormwater issues that each municipality could modify to be specific to the municipality waters. Engaging a public relations firm to identify messages that can be effective is a lengthy and expensive process that should not be imposed upon smaller communities or single cities. It will likely take any party at least 6 months to identify a target audience and message, and develop an evaluation protocol. The USEPA is in a better position to create and evaluate the effectiveness of any public education messages. The City of Portsmouth has participated with the Seacoast Coalition on storm water educational initiatives in

the past and is particularly sensitive to the need for a properly funded, broad sweeping public education program in lieu of inadequately-funded local initiatives.

Should the USEPA persist in delegating this important educational component to individual municipalities, these requirements should be targeted for Permit Years 2 and 3, not Permit Years 1 and 2. This would provide a greater opportunity for municipalities to work together to develop a more effective educational message.

Comment 2.3.2(iii) from City of Manchester (Robinson) - We have done a lot of public education for this pond and we will do more. I would like to do more plans like this in the future. Overall I think we would all like more flexibility, I do think the public education part of the permit is pretty good and very important. We need to try and get people to be more environmentally conscious. That right there is the biggest challenge facing the nation. Except for a few areas around the country I feel that most are not. I think that EPA should like at doing some nationwide public service announcements with help from the State environmental protection departments.

Comment 2.3.2(iv) from Town of Seabrook – The expanded public education (i.e., residential, business/commercial, developer / construction and industrial) and involvement components included in Section 2.3.2 will place a large burden on Seabrook. We request that USEPA develop a national educational program on stormwater pollution prevention that includes information pertinent to these sectors. A USEPA educational Program would be far more effective in New Hampshire's multiple MS4 communities than many individual small programs. Finally, the USEPA should continue to allow joint efforts - such as materials and programs developed by the Seacoast Stormwater Coalition - to count toward education goals.

Comment 2.3.2(v) from Steve Miller - Every effort should be made to make the new regulations efficient as well as effective. Municipalities need to be able to share education programs as well as other resources, that are developed using clear EPA guidelines that can be customized by each municipality to be relevant and meaningful to the audience. Public involvement and participation is very important and local watershed groups as well as citizen groups should be able to help municipalities meet these requirements.

Comment 2.3.2(vi) from City of Somersworth - Under Section 2.3.2, there is required education of residential property holders within our community, commercial, industrial and I forget what the fourth one was. It requires education twice a year. It's been asked and suggested by others that there be some allowance within the permit to do this type of education as a group, i.e., possibly through our area of stormwater coalition, that way the communities can better manage the cost associated with trying to reach out and do this education

> **Response to comments 2.3.2(ii) to (vi)** – Prior to the development of the 2008 draft, EPA developed and made available many types of public educations materials. Some of these resources were included in the fact sheet which accompanied the 2008 draft (Attachment A to this Fact Sheet).
>
> EPA is not able to initiate a nation-wide educational message, but the Region is exploring additional opportunities to assist in the educational efforts. EPA Region 1's Soak Up the

Rain campaign is a regional effort to educate and promote action on stormwater pollution. See www.epa.gov/region1/soakuptherain.

In addition to the efforts described above, the following resources for education are available.

EPA has available four DVDs on stormwater.

- Reduce Runoff: Slow it Down, Spread it Out, Soak it In! – an introductory video on reducing stormwater runoff and its harmful effects on the environment;
- RiverSmart Homes: Getting Smart about Runoff in Washington, DC – a video regarding the District of Columbia's RiverSmart Homes program which provides assistance to citizens to install various practices such as trees, rain barrels, and rain gardens;
- Building Green: A Success Story in Philadelphia – a look at an environmentally friendly housing complex in Philadelphia; and
- After the Storm – a video produced by EPA and The Weather Channel in 2004 to educate the public about watersheds and what the public can do to clean up their watershed including implementing practices to address stormwater.

These DVDs can be aired on cable TV. They may be ordered from the National Service Center for Environmental Publications (NSCEP) by emailing nscep@bps-lmit.com or calling 800-490-9198. Include EPA document number EPA 842-11-001 when ordering.

EPA's website: www.epa.gov/npdes/stormwater/menuofbmps/publiceducation is a gateway to readily available public education materials. One example is a link to EPA's "Getting In Step" education program. It has information about education in the classroom, education for businesses, and education for homeowners.

There is the Nonpoint Source Outreach Digital Toolbox (http://cfpub.epa.gov/npstbx/index.htmlgov/npstbx/index.html). This toolbox contains links to public service announcements for TV, radio and print media. This website provides links to many other sources for education material.

Some non-EPA sources include the Sprink Stormwater Education Campaign (www.stormwatereducation.com) is a private organization which provides educational materials. (Mention of this program does not constitute agency endorsement).

Various watershed organizations also have put together education programs for use by municipalities.

EPA has determined, however, that local education efforts are important in targeting educational messages to the most pressing local issues, establishing links between general stormwater education and local water quality issues, and encouraging greater support for municipal stormwater programs as the public gains a greater understanding of the reasons why they are necessary and important. EPA therefore views its regional educational efforts

as complementary to the local requirements under the permit, rather than as a substitute. See also 40 CFR § 122.34(b)(1)(ii).

EPA agrees that joint efforts are a particularly useful and cost-effective means of meeting the public education requirements. As the 2008 draft did not clearly state that joint efforts are appropriate, the Permit has been revised to clarify this.

With respect to the suggestion to target this requirement to permit years 2 and 3 instead of years 1 and 2, it is not EPA's intent that all educational messages be distributed in years 1 and 2 of the permit. The permit requires two (2) messages over the course of the permit term to each of the four audience groups, spaced at least a year apart. While EPA has required the program to begin in year one, EPA anticipates that the majority of educational messages may be distributed later in the permit term. This should give permittees the opportunity to engage in the joint efforts suggested in the comments.

Changes to permit: The permit text of Part 2.3.2.1.b. has been revised accordingly.

Comment 2.3.2(vii) from Town of Derry – Effective programs must demonstrate that the "defined goal" of the program has been achieved. EPA defines the goal is to "create change in behavior and knowledge so that pollutants are reduced". While knowledge can be demonstrated through outreach efforts, how does EPA propose proving a change in behavior? Does EPA have ways of proving that pollutants were reduced other than conducting extensive, regular, periodic analytical testing which is both resource and cost intensive. A review of BMP Outreach website does not provide much if any insight into this issue.

Comment 2.3.2(viii) from City of Manchester (Sheppard) - Manchester supports the public education element of the permit. We need to attempt to educate the public to be more environmentally conscious. The permit states *"The ultimate goal of a public education program is to create a change in behavior and knowledge so that pollutants in stormwater are reduced."*

How does the EPA expect the municipality to measure a change in behavior and knowledge gained from the educational message? Follow-up surveys are ineffective. Many are not completed or returned including the online surveys. Some additional guidance is needed from the EPA on this requirement. The City of Manchester anticipates budgeting $l0,000 above what is already spent to comply with this requirement. The EPA and the NHDES should work together to develop public service messages and give guidance to the municipalities on messages for the different audiences.

Comment 2.3.2(ix) from Town of Amherst – It is going to be difficult to measure the effectiveness of the education and outreach. It is usually difficult to get the public to respond to surveys or other gauging methods.

Comment 2.3.2(x) from Town of Londonderry – Evaluating the effectiveness of the program will be difficult; typically people do not attend public or informational meetings unless it directly affects them. We have found success educating persons by attending such events as elections and leadership meetings. Those that attend, such an event, typically are willing to listen and partake.

Response to comments 2.3.2(vii) to (x) – EPA agrees that the 2008 draft language was unclear in its reference to demonstrating that the "defined goal" of the program has been achieved. This language was not intended to indicate that permittees' efforts should be assessed against the "ultimate goal" set forth in the first paragraph of creating "a change in public behavior and knowledge so that pollutants in stormwater are reduced." Rather, it is EPA's intent that permittees define more specific goals for their education program based on stormwater issues within the community, and assess their programs in relationship to those goals.

To clarify this, EPA has revised the permit language to clarify that effectiveness should be assessed against these "defined educational goals" and that an effective program should show evidence that progress toward the defined goals is being achieved. EPA does not expect that educational goals will generally be defined by permittees in such a manner as to require analytical testing to demonstrate reduction in pollutants, and it is not requiring that sort of demonstration.

EPA agrees that surveys can be a difficult method for evaluating effectiveness of programs, particularly those aimed at residents. In referencing surveys it was EPA's intent simply to provide an example of a means of evaluation. It is not EPA's expectation that permittees conduct evaluative surveys as the primary means of evaluation, and EPA is therefore removing this suggestion from the Permit. Surveys remain one of a number of potential methods for gauging effectiveness of a program.

EPA notes that permittees have already established "measurable goals" in connection with their public education activities. EPA's intent in requiring a focus on effectiveness is that the goals of the program be defined and assessed in terms of the effect of the educational messages, rather than simply an accounting of actions taken by the permittee. Many permittees have been providing examples of such information in their annual reports submitted under the MS4-2003. For example, the Town of Derry noted in its 2010 Annual Report that its "aggressive outreach and advertising for the last several [household hazardous waste collection] events resulted in a significant increase in participation of Derry residents." This is the sort of evidence of a change in public behavior that the permit seeks. Other examples might include:

- Level of participation in pond clean-up days or similar events
- Number of calls to stormwater/pollution hotline
- Use of pet waste centers (bags used, amount of waste collected)
- Volume of material collected in leaf litter or hazardous waste collection
- Number of hits to stormwater website
- Results on inspections of industrial and commercial hotspots

EPA encourages permittees to consider what measurable goals it will assess at the early stages of its public education planning, so that these types of tracking measures can be incorporated into the program design.

Changes to permit: The permit text of Part 2.3.1., 2.3.2.1. and 2.3.2.2. have been revised accordingly

Comment 2.3.2(xi) from City of Somersworth -. It was also asked of me, or pointed out to me, what if we invite or mandate, for instance, that all of our contractors attend and none of them do? Have we achieved a permit goal by at least offering this permit and requesting that they attend, yet there again, we have no authority to mandate that they attend. If we could get some guidance [from] the EPA on that.

Response to Comment 2.3.2(xii) – EPA recognizes that not all messages or distribution techniques will be effective and that the most effective approach may not be obvious at the outset. Therefore, Part 2.3.2.3 of the permit requires that "[t]he permittee must modify any ineffective messages or distribution techniques prior to the next scheduled message delivery." While unsuccessfully requesting or mandating construction contractors to attend an educational session could be counted as one of the two required messages for that audience, it clearly would not be considered effective at achieving a defined goal of the program, and the distribution technique would have to be modified before the next message. The permit requirement would not be met by holding two identical unattended sessions.

Changes to permit: none.

Comment 2.3.2(xii) from UNH – For "Public Education" the target audience for a non-municipality such as UNH is defined as 1) employees, 2) visitors to the property, and 3) contractors working on the property. Conducting surveys is suggested as an evaluation method. Because visitors and contractors are a very transient audience, surveys or other local evaluation methods are very difficult. Consider instead a regional evaluation effort conducted by NH-DES and/or EPA as a more cost-effective and instructive evaluation (for both municipalities and non-municipalities) method than individual evaluation attempts by each permittee.

Response to comment 2.3.2(xiii) – EPA agrees that surveys are not always the most appropriate method for judging effectiveness. See Response to Comments 2.3.2(vii) to (x).

EPA does not agree that contractors are as a general matter a transient audience, as many institutions repeatedly use the same contractors (or at least the same general contractor). Contractors are also subject to oversight and paperwork that should be conducive to delivery of educational messages and evaluation. EPA does agree that "visitors" represents a transient audience and that, in the case of an educational institution such as UNH, students would represent a more appropriate and less transient audience. EPA is therefore revising this part of the Permit to provide that the audiences include "clientele/customers (including students for educational MS4s) or visitors to the property".

EPA disagrees that a regional evaluation effort is necessarily appropriate, as the purpose of this permit requirement is to evaluate the effects of the specific educational measures undertaken by individual permittees. A regional evaluation would be appropriate in

connection with a regional outreach effort. If a permittee participates in such a regional effort it may also participate in regional evaluation efforts.

Changes to permit: The permit text of Part 6.1.1 has been revised accordingly.

Comment 2.3.2(xi) from City of Dover – I suggest that EPA eliminate or minimize the requirement to evaluate the effectiveness of its education and public outreach initiative. The final measure of the Phase II program will be whether in years to come we see an improvement in water quality in our streams and rivers. If I explain to my City Council what needs to be done to comply and they appropriate the money then I have succeeded. The money will be used to implement the plan we have submitted and EPA approved. That's enough for now. Frankly those of us who implement the Phase II program on the ground have many other responsibilities in addition to the Phase II implementation. Spending time writing a story on whether we think our efforts are successful or not at educating and reaching the public is at best a comfort to EPA, but in reality a poor expenditure of time and effort for those of us in the field. Please excuse the bluntness of these comments, but if EPA actually has staff to read these type of analysis, those resources would be better spent on putting together a national/ regional storm water educational campaign which will assist us in reaching the public. EPA can then evaluate how successful the campaign was in helping the communities and EPA reaching our common goal of improving water quality.

Comment 2.3.2.1 from Seacoast Stormwater Coalition – The new detailed requirements in the Draft Permit relative to public education and outreach are beyond the capabilities of the vast majority of small MS4 communities, short of contracting with a professional communications or advertising firm. To develop and manage a focused education and outreach program and track its progress, as required by the Draft Permit, will take further valuable resources away from other programs that are proven effective. Providing reports on methods and evaluations of the education and outreach effectiveness (including conducting surveys) represents unnecessary micromanagement of activities that are unlikely to produce cost-effective results. National educational institutions report questionable success rates when evaluating the true effectiveness of education and outreach programs involving passive participation even with the use of voluntary surveys. A national stormwater education outreach program structured after an existing program such as the water conservation educational outreach program associated with EPA WaterSense would be more appropriate and less costly than requiring all communities to "go it alone". The Draft Permit should encourage cooperative regional or local education outreach programs coordinated by coalitions such as the Seacoast Stormwater Coalition. The proof that the Coalition's cooperative approach to education and outreach on stormwater issues is effective comes in the form of genuine public interest and support, which is not necessarily measureable.

Response to comments 2.3.2.1 – EPA notes that evaluation of the effectiveness of public education and other control measures is a requirement under the MS4 Phase II regulations. See 40 CFR § 122.34(g)(1). Thus this evaluation requirement is not discretionary for EPA in developing this permit. EPA does not expect that permittee's evaluation efforts will rise to the level of a professional communications or advertising firm. Rather, the permit requirements are intended to encourage permittees to focus on

the results of their education and outreach efforts, rather than limiting their assessment to reporting their own actions. EPA encourages cooperative efforts such as those by the Seacoast Stormwater Coalition. EPA believes that genuine public interest and support will be discernible in measurable activities, particularly as permittees focus on more specific educational goals.

Changes to permit: none.

2.3.3 Public Participation

Comment 2.3.3(i) from Roger Frymire – Require all SWMPs and Annual Reports be online. In addition to Public Notice requirements for stormwater meetings, require notification by email to all active watershed associations with concerns in the MS4 of all public meetings and opportunities for public comment.

Response to comment 2.3.3(i) - Annual Reports submitted to EPA are posted on EPA's website. Reports under the MS4-2003 are located at http://www.epa.gov/region1/npdes/stormwater/2003-permit-archives.html, and a similar repository will be used for posting of annual reports under the reissued permits.

EPA is encouraging but not requiring that SWMPs be posted online. SWMPs must be made available for public review during regular business hours. Part 1.10.1.b of the Permit has been modified to clarify this and to provide consistency with the Record Keeping requirements of Part 5.2.3.

EPA does not believe that it would be appropriate to require MS4 operators to identify "all active watershed associations with concerns in the MS4" in order to provide notice to them of public meetings and opportunities for public comment. EPA notes that there are numerous small watershed associations with concerns for specific local water bodies in addition to the larger watershed associations, and it would be inefficient to require cities and towns to take the initiative of identifying what such organizations exist and are "active" and to determine contact information for them. Individual watershed associations are in a better position than the respective cities and towns to identify the MS4s in which they have a concern, and can initiate contact with those MS4 operators in order to arrange notice. EPA encourages mutual awareness and information sharing among MS4s and watershed associations.

Changes to permit: There are no changes to Part 2.3.3. The permit text of Part 1.10.1.b. has been revised accordingly.

2.3.4 Illicit Discharge Detection and Elimination (IDDE) Program

Comment 2.3.4 from Steve Miller - Illicit discharge detection and elimination should be improved with funding to help towns detect and correct problems, a measurable tracking success program, and stronger penalties for those who create these problems.

Response to comment 2.3.4 – EPA agrees that illicit discharge detection and elimination should be improved. This is a major focus and the reason for the more detailed IDDE requirements in this Permit.

EPA understands that additional funding would assist towns in detecting and correcting these problems, as it would with respect to many aspects of this permit. While EPA is seeking to provide technical assistance to MS4 communities to the extent possible, the permittees that are seeking authorization under this general permit for their discharges of pollutants to waters of the United States bear the responsibility for implementing and, if necessary, funding the IDDE detection program. EPA encourages permittees to implement their enforcement programs so that the cost of IDDE elimination falls upon the party that is illicitly discharging into the MS4 system.

EPA also agrees that a measurable tracking program is important. The Permit requires that permittees track in their annual reports the area and percent of their system investigated, the number of illicit discharges removed, and the volume of sewage removed from the system, as well as the results from sampling for IDDE-related parameters. These reporting requirements will assist permittees, regulatory agencies and third parties to assess the success of particular IDDE programs.

Finally, EPA agrees that provisions for strong penalties, along with increasing the likelihood of detection through thorough IDDE investigation, have the potential to create incentives that will reduce illicit discharges. EPA encourages permittees to consider the role of penalties in establishing an effective enforcement program.

Changes to permit: none.

Comment 2.3.4.2(i) from City of Portsmouth - Most municipalities or quasi-municipal sewer districts, including the City of Portsmouth, are required to report to the USEPA on Sanitary Sewer Overflows (SSOs) as part of their NPDES permits for their wastewater treatment plants. This requirement for additional reporting is redundant. The City of Portsmouth recommends it be removed from the General Permit Requirements.

Comment 2.3.4.2(ii) from Roger Frymire – I very much appreciate and approve of the SSO provisions contained in this permit.

Response to Comments 2.3.4.2(i) and (ii) - An SSO discharge to a MS4 is an illegal non-stormwater discharge to and from the stormwater system and represents an independent violation of this stormwater permit and remains a violation until removed[24], in addition to any violation of the NPDES permit for the wastewater treatment plant. Reporting of these discharges in the context of the MS4 permit is essential to a full understanding of MS4

[24] EPA notes that the period between identification and elimination of a discharge from the SSO to the MS4 is not a grace period, and such a discharge remains a violation of the permit until eliminated. The requirements in Part 2.3.4.4.b-d are distinct from the requirement not to receive SSO discharges in Part 2.3.4.4.a, and compliance with Part 2.3.4.4.b-d does not excuse or otherwise constitute a defense to a violation of Part 2.3.4.4.a or any other provision of the permit or of any applicable law or regulation.

discharges, especially as the presence of a MS4 can result in SSOs discharging to receiving waters a considerable distance from the sanitary sewer that is the source of the flow. Furthermore, there are cases where SSO discharges are from municipal sanitary sewers that are not owned by the MS4 permittee, as in the case of regional sewer districts. Therefore these provisions are relevant to the MS4 and are not redundant. EPA is not removing these requirements, but has made some clarifying revisions to the language.

Changes to permit: Part 2.3.4.2 has been moved to Part 2.3.4.4 and revised accordingly.

Comment 2.3.4.4(i) from Town of Londonderry - Elimination of sources of non-stormwater from the separate storm sewer system may include the elimination of under drains that were constructed to ensure longevity of the roadways. Please clarify that such under drains would be permitted within the separate storm sewer system.

Response to Comments 2.3.4.4(i) - As EPA understands the comment, the question concerns roadway underdrains designed to allow drainage of groundwater from the road base at high groundwater levels. If so, these would represent an instance of discharge of "rising ground water" under Part 1.4.d, and represent an allowable non-stormwater discharge unless the permittee determines that it is a significant contributor of pollutants. EPA notes, however, that underdrain systems located in proximity to sanitary sewers or septic systems can provide a conduit for sanitary flows if there are defects in the sanitary system, and that this is a not uncommon illicit discharge issue. Connections from underdrain systems in such areas should be identified and assessed through the IDDE program, as discussed further in the Response to Comment 2.3.4.6.

Changes to permit: none.

Comment 2.3.4.4(ii) from Town of Derry – This section requires implementation of the IDDE program that includes an evaluation of sources of non-stormwater to determine whether they are significant contributors of pollutants. These include many potential sources in "High Pollutant Load" areas that are already regulated under numerous other state and federal pollution prevention and spill response programs, rules and regulations. These potential sources include but are not limited to car dealers, car washes, gas stations, industrial manufacturing areas, and colleges. The draft permit results in significant overlap of existing programs by assigning investigative and enforcement responsibility that are already the responsibility of higher level agencies. In addition, it would be virtually impossible and extremely burdensome to require a permittee to force an existing facility to change its practices or incur additional expense to prevent any pollutants from leaving its site when it has already been approved by higher level agencies.

The existing programs are already designed to prevent pollution to the maximum extent practical and respond to spills and pollution causing activities. A more feasible approach would be to provide exclusions for permittees relative to overlapping areas and to allow permittees to defer to state or federal regulations and agencies for appropriate follow-up. Specific areas should include different waste waters, and storage and handling of virgin products and other regulated hazardous and universal wastes. In its current version, it can be interpreted that permittees would have incur excessive costs for enlisting the services for 24-hour on-call emergency response contractors.

Comment 2.3.4.4(iii) from Town of City of Portsmouth - This section of the IDDE requirements references the listing of allowable Non-Stormwater Discharges from Section 1.4. The Section 1.4 language implies that these listed Non-Stormwater Discharges are acceptable unless proven otherwise. The language in Section 2.3.4.4 implies the permittee must undertake a comprehensive analysis of each of the non-stormwater discharges listed in order to prove that they do not cause or contribute to water quality issues. The City of Portsmouth believes that the USEPA or the State should be responsible for such a study that would benefit all permittees. In addition, because this analysis is required to be contained in the SWMP, it would need to be completed within 120 days of the effective date of the permit. Insufficient time has been allotted if this permit requirement remains.

The City of Portsmouth recommends that the language in 2.3.4.4 be removed completely or revised to reflect that only when the listed non-stormwater discharges are observed during illicit discharge detection and elimination (IDDE) inspections would an evaluation be conducted to determine if the discharge is a significant contributor of pollutants. For example, identification of a dry weather discharge that is determined to be water line flushing would be evaluated to determine if it is a significant contributor of pollutants. This evaluation could consist of a visual assessment of the discharge for solids (suspended and dissolved) and visual assessment of the receiving water to ensure it was not causing excessive erosion.

Comment 2.3.4.4(iv) from UNH - Section 2.3.4.4 requires evaluation of the exempted activities in Part 1.4 of the draft permit. The permittee is required to evaluate sources exempted in Part 1.4, such as water line f1ushing, landscape irrigation, swimming pool discharges, etc. The permittee is required to determine if those sources are significant contributors of pollutants to the municipal system. This requires expertise beyond that of the typical permittee and, therefore, considerable expense on consultants and laboratories. Consider deleting section 2.3.4.4 from the permit and leaving the exemptions of Part 1.4 in place. This will allow permittees to direct scarce resources towards more important/effective storm water measures.

Comment 2.3.4.4(v) from Town of Exeter - How do we determine if non-stormwater discharges are a significant contributor?

> **Response to comments 2.3.4.4(ii) to (v)** – EPA agrees that individual analyses by every permittee of each of the eighteen categories of allowable non-stormwater discharges is not an efficient use of resources in the absence of an indication that a particular source presents an issue. EPA is therefore eliminating the requirement that each permittee evaluate these discharges and document its determination with respect to each category of discharge.
>
> *Changes to permit: The permit text of Part 2.3.4.3. has been revised accordingly*

Comment 2.3.4.5(i) from City of Manchester - Section 2.3.4.5 states a separate storm sewer system map must be finished by two (2) years from the effective date of this permit. This is in conflict with section 1.10.3 bullet one that states mapping must be completed three (3) years from the effective date of the permit and even cites section 2.3.4.5.

Response to comment 2.3.4.5 – EPA disagrees that the provisions are inconsistent. Part 1.10.3 applies to "new permittees" who were not authorized under the MS4-2003. See also Response to Comment 1.10.3.

Changes to permit: none.

Comment 2.3.4.5(ii) from the Town of Amherst – Portions of the new MS4 permit require additional GIS capabilities that the Town of Amherst currently does not have. The new permit is requiring accurate mapping of all drainage structures. The new permit is also requiring analysis of sub-catchment areas and impervious areas. Without additional modern GIS software and aerial photography as well as more accurate GPS survey grade mapping equipment, these analyses are nearly impossible to perform. This new equipment and software would require additional training and staffing. Again I ask where will the funding be coming from to fund these capital purchases to support the requirements of the new program?

Response to Comment 2.3.4.5(ii) – For a community to effectively manage its MS4, it must know what infrastructure assets it has and where they are located. This is the reason that mapping has been a focus of the MS4 permit program since its inception and remains a focus for the second permit term.

EPA understands that GIS software is an invaluable tool for the mapping requirements of this permit. However, every element of the mapping program is one that historically was done without the use of GIS and can be done without GIS. The mapping requirements do not require survey grade locations of structures. While GPS units uploading to a GIS system are an efficient way to locate structures in a manner that minimizes the need for later data entry, the hand marking of structures on a paper map can be equally accurate and meets the requirements of the permit. Similarly, catchment delineation was traditionally done by hand on paper maps and does not require GIS. For impervious surfaces, EPA is requiring only that communities track the addition or removal of impervious surfaces, a task that does not require GIS.

EPA also encourages communities that do not currently have GIS systems to investigate low- or no-cost software, data and training resources that are available to them. Open source GIS software is available at no cost and may be sufficient for the smaller MS4 systems. The New Hampshire GIS data center (GRANIT) provides free GIS data, including topography, receiving waters, and high resolution aerial photography, and a data viewer/on-line mapping program for users who do not have GIS systems. (www.granit.unh.edu) The University of New Hampshire Cooperative Extension Program provides low-cost training in GIS, GPS, on-line mapping and other topics in Geospatial Technologies. EPA has also conducted GPS training for MS4 communities. Communities are likely to find that the benefits of these resources and training extend beyond NPDES permit compliance.

Changes to permit: none.

Comment 2.3.4.6 from City of Portsmouth - Written IDDE Program. Item "a" appropriately references the legal authority for illicit discharges required by the MS4-2003 General Permit.

Similar references should be added to the following IDDE sections because many municipalities have already completed these tasks as they were also required by the MS4-2003 General Permit:

b. Illicit discharge potential assessment and prioritization of catchments within the MS4,
c. Written protocol of responsibilities for eliminating illicit discharges
d. Written systematic procedure for locating illicit connections (this section should also be modified to acknowledge that if a municipality has already walked the shorelines of their waters to develop their map and confirm the illicit discharge potential as part of the MS4-2003 protocol, they need only continue to evaluate their high priority waters as part of this General Permit using the dry weather monitoring protocol),
e. Procedures designed to prevent illicit discharges, and
f. An indicator and tracking program.

In particular the City of Portsmouth worked with the Seacoast Coalitions Communities to develop a manual that identified procedures to fulfill these requirements under the MS4-2003 General Permit and used the procedures to document these items for its community.

Response to Comment 2.3.4.6 - EPA agrees that there is a need to clarify which tasks completed under the MS4-2003 may satisfy the requirements of this permit. As noted in the comment, the "legal authority for illicit discharges" was required by the MS4-2003. Other IDDE sections, though not specifically required under the MS4-2003, were completed to some extent by many communities and may be eligible to meet the requirements of this permit, *to the extent that* the specific requirements of this permit are satisfied. EPA expects that most if not all permittees will need to revise and update aspects of their programs to meet the requirements of this permit.

The revision and updating of existing IDDE programs will be necessary because this permit requires the implementation of a far more detailed and thorough IDDE program than that adopted by most communities. EPA has prescribed these detailed requirements based on its extensive experience addressing illicit discharges in communities authorized under the MS4-2003. This experience revealed a number of pervasive weaknesses in existing programs, especially with respect to how successful dry weather screening programs have been in identifying illicit discharges. EPA has encountered numerous outfalls that had been "screened" and found to be unsuspicious, but for which EPA's sampling revealed clear evidence of illicit discharges. The problem appears to have a number of sources, including:

- Apparent difficulty staff have in recognizing indicators of illicit discharge;
- Potential for discharges to appear clear even though sampling reveals that they are contaminated with sewage or other illicit discharges;
- Sampling for too few parameters (e.g. bacteria only, where bacteria counts from sewer inputs are suppressed by residual chlorine in the system);
- Illicit discharges that do not reach the outfall, accumulating within the system until a storm event washes them out;
- Direct connections to sanitary sewer (or septic systems) that provide relief to the sanitary system during wet weather conditions, and are not active in dry weather;

• Aging and cracked infrastructure in the storm and sanitary sewers that allows flow from the sanitary sewer to the storm sewer via high groundwater in wet weather conditions, also not seen during dry weather; and
• Inputs from failing septic systems under wet weather conditions.

As a result of these issues, EPA is requiring a number of elements that go beyond the level of program commonly adopted under the MS4-2003. Thus the 2008 draft included requirements for (1) sampling for a specified suite of parameters determined by EPA to be essential to identifying illicit discharges; (2) implementation of a truly systematic approach to investigating a catchment by opening junction manholes throughout the catchment; (3) implementing the catchment investigation approach in every catchment, regardless of its priority or the results of outfall screening; (4) including wet weather-triggered illicit discharges within the scope of the IDDE program through wet weather sampling and investigation; and (5) more detailed tracking of the program.

EPA recognizes, based on the comments, that the 2008 draft may have been somewhat unclear as to the implementation of these requirements, and particularly how permittees may build upon the programs developed under the MS4-2003. EPA has therefore revised the permit in order to clarify the requirements. In doing so, EPA has also attempted to clearly indicate where permittees are most likely to be able to rely on efforts undertaken in the previous permit term. Where possible, EPA has also revised the requirements to make better use of those prior efforts.

As EPA is aware that a number of NH communities have adopted the NH Seacoast Stormwater Coalition's *Guidelines and Standard Operating Procedures for Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping* (November 2006) ("2006 *IDDE Standard Operating Procedures*"). The manner in which MS4 communities use this guidance in adopting specific IDDE provisions should be compared to the new permit requirements. As illustrated in this discussion, there are likely areas where an MS4's specific IDDE practices will need to be revised.

Program elements identified in comment:

Illicit discharge potential assessment and characterization of catchments: The permit requires that illicit discharge potential be assessed for each individual catchment, defined as the drainage area contributory to an individual outfall. This differs from the recommendation to use the Level 6 subwatershed boundaries in the *2006 IDDE Standard Operating Procedures*. EPA believes that tracking of the illicit discharge program on an individual catchment basis is essential, and therefore is maintaining the requirement that priorities be set based on individual catchments. Permittees must revise their prioritization if necessary to apply to individual catchments, although the initial prioritization (high or low) may in some cases be carried over from the prioritization previously performed.

The 2008 draft also required an individual assessment of criteria for each catchment in order to set the initial priority that would be documented in the SWMP. This is similar

to the procedure set forth in section 2.2.3 of the *2006 IDDE Standard Operating Procedures*. This remains a recommended procedure, but EPA has eliminated the specific requirement in order to allow permittees some flexibility in using their previous prioritization for this requirement.

Finally, EPA recognizes that the permit did not clearly establish the connection between the screening results and the IDDE program. See also Response to Comment 2.3.6.d(iii). Screening and sampling results should be used, along with other new information, to inform the prioritization of catchments for investigation and to assist in locating illicit discharges. In particular, any outfall sampling with high levels of ammonia, surfactants and bacteria must be given the highest priority for investigation and those catchments with evidence of sewer input must all be investigated within 5 years of permit effective date. The Permit also requires the prioritization to be reassessed annually based on screening and sampling results and other new information. This is consistent with the *2006 IDDE Standard Operating Procedures*, which includes reviewing the priority areas in the annual evaluation of the program (section 2.8).

Written protocol of responsibilities: The revised permit titles this section "Statement of IDDE Program Responsibilities." This element is not specifically included in the *2006 IDDE Standard Operating Procedures*, aside from the presumption that there is a "Program Manager" and the identification of potentially appropriate responsible departments in connection with removal of illicit discharges. This program element should specifically identify municipal departments responsible for different aspects of the program; the permit language has been revised to more specifically address that purpose. Permittees may rely on previously developed responsibility protocols that meet the permit requirements.

Written systematic procedure for locating illicit connections: The "systematic procedure" will require substantial changes from the procedures in the *2006 IDDE Standard Operating Procedures*. While that document includes a procedure for opening manholes to locate an illicit discharge, the investigation procedure set forth in the 2008 draft was more comprehensive (method must "include an investigation of each junction manhole within the MS4") and more systematic (procedure is not just one of several options and permittee must continue inspecting junction manholes even after an illicit discharge is located). Indeed, the investigation procedure in the permit is not intended merely as a method for tracing the source of a discharge that was identified at the outfall. The investigation is intended also to be a means for finding new evidence of illicit discharges, including those that may not reach the outfall or those that are triggered by wet weather.

Based on the comments it appears that clarification of this requirement is necessary. Part 2.3.7.d.6 has therefore been revised as a three part "Catchment Investigation" procedure. The first element is a review of available mapping and historic plans and records, including construction and as-built plans of both the storm drain system and any sanitary sewer in the catchment, plans related to infrastructure repair or rehabilitation, data regarding septic systems failures, required upgrades and breakouts, and complaint

records. This review is intended to identify areas where there is a potential for inputs from sanitary sewer and septic systems, including during wet weather conditions, referred to in the permit as "system vulnerability factors".

Second, the procedure includes a manhole inspection methodology. While this is similar to the procedure set forth in the *2006 IDDE Standard Operating Procedures*, the permit requires that all "key junction manholes" in a catchment be inspected, even after a particular suspected illicit discharge is located, and even if there is no evidence of illicit discharge at the outfall. (Note this is a reduction from the 2008 draft, which required opening all junction manholes.) The inspection shall include looking for evidence of dry weather flow (and sampling if present) as well as System Vulnerability Factors (physical infrastructure defects and catchment characteristics as listed in Part 2.3.4.8(e)(i)) that may lead to wet weather triggered illicit discharges. Where necessary the inspection should be repeated under wet weather conditions to assess whether illicit discharges are in fact present under wet conditions. Where one or more System Vulnerability Factors have been identified, at least one wet weather sample at the outfall must be taken before the investigation can be considered complete. This is in lieu of the 2008 draft requirement of an initial wet weather sampling of all outfalls. See also Response to Comment 3.1(i) and (ii).

Finally, the Catchment Investigation procedure includes methods to isolate and confirm the source of an illicit discharge. The *2006 IDDE Standard Operating Procedures* provides a useful summary of available methods, although EPA expects that individual permittees adopting this document will specify which of these approaches are applied by the community and under what conditions.

Procedures designed to prevent illicit discharges: This section is not specifically included in the *2006 IDDE Standard Operating Procedures*, although that document does contain references to education and complaint hotlines. The updated IDDE program should identify elements that are designed to prevent illicit discharges, including public education and outreach addressing illicit dumping or discharges; recycling programs for commonly dumped wastes such as motor oil, antifreeze, and pesticides; citizen complaint hotlines; etc. Many permittees have such elements in place; if so they may identify existing programs in compliance with this requirement.

An indicator and tracking program: This permit contains specific indicators that must be tracked for permit compliance. These include the number of illicit discharges found and removed and the percent and area of the MS4 evaluated using the systematic procedure. In order to better assess the impact of the program on water quality, the Permit also requires tracking of the volume of sewage removed from the system. The permittee's indicator and tracking program should be revised to the extent necessary to comply with these requirements.

EPA also notes that the *2006 IDDE Standard Operating Procedures* includes information on procedures for removal of illicit discharges that may need examination to ensure that the

expected timelines for remedial action in the permit are satisfied[25]. The permit as revised also requires a confirmatory screening once illicit discharges have been removed; this will include dry weather sampling, wet weather sampling, or both depending on previous screening results and whether system vulnerability factors have been identified.

Changes to permit: Permit part 2.3.4.6.a. through e. are deleted and replaced with a new permit part 2.3.4.8 and revised accordingly.

Comment 2.3.4.6.d(i) from City of Manchester – The outfall inventory requirement has already been completed by most communities. In the City of Manchester our MS4 has been mapped including the location of the outfalls. This information is included in our GIS. Currently the outfalls are inspected on an annual basis and sampled as necessary during dry weather flow conditions. Any discharge that is actively flowing whether it is via a pipe outfall or a stream is sampled and tested for E-Coli. If the staff conducting the sampling suspects that this discharge could contain any other pollutants then they sample the outfall for these parameters. The sampling for E-Coli is a good indicator of an illicit discharge along with the visual inspection. If an elevated result is obtained, then the outfall is sampled up stream to try and locate the source of the contamination.

The requirements to test the outfalls for conductivity, turbidity, pH, chlorine, temperature, surfactants (as MBAS), potassium, ammonia, in addition to E-Coli, and the impairments of the water body as stated under 3.0 Outfall Monitoring Program for 25% of the outfalls per year for both dry weather and wet weather conditions is very costly and time consuming. The City of Manchester estimates that the sampling protocols under sections 2.3.4 and 3.0 will cost the City approximately $15,000 above what is already being spent.

The individual parameters may indicate a potential problem, but the reality is that the source of the problem is an unregulated entity under the EPA program. Agriculture and private residences are exempt under stormwater regulations. However through fertilization, car washing activities and general practices associated with each will show the largest impact to ammonia, potassium, phosphorus, surfactants and pH. Conductivity will also increase because of the salts associated with these exempt stormwater sources. Until all entities are regulated, especially agriculture, it will be impossible to show improvements to water quality criteria on a consistent basis. Manchester and other communities believe that the current practice of checking for bacteria, along with the sensory observations outlined in the "Outfall Inventory" section, complies with the IDDE and is sufficient until exemptions are lifted from the current stormwater program.

The water bodies are already being sampled for pollutants. The City of Manchester performs the dry weather screening as outlined above, the NHDES also performs dry weather screening, and the NHDES performs water quality testing of water bodies in the City of Manchester and in the State of NH. Urban ponds are sampled during the summer months by the urban ponds program,

[25] In addition EPA notes that the period between identification and elimination of an illicit discharge is not a grace period, and an illicit discharge to the MS4 remains a violation of the permit until eliminated. The requirements in Part 2.3.4.2.b are distinct from the requirement not to receive illicit discharges in Part 2.3.4.2.a, and compliance with Part 2.3.4.2.b does not excuse or otherwise constitute a defense to a violation of Part 2.3.4.2.a or any other provision of the permit or of any applicable law or regulation.

pond groups, and the City of Manchester Health Department. The City of Manchester has just completed a watershed restoration plan for Nutt Pond and we will be doing more extensive sampling on the outfalls for parameters that were identified in the plan. We are also going to be looking at other BMPs in the watershed to help with loadings to the pond. The City of Manchester is a CSO community and is required to sample the CSO outfalls on an annual basis per our NPDES wastewater discharge permit.

The City of Manchester along with other communities in conjunction with the U.S. Army Corps of Engineers and CDM has been participating in the Merrimack River Study Phases I & II. This is a watershed based approach to the river WQ issues. A report was generated on the findings from the first phase of the study. The second phase is underway. The City of Manchester is contributing $22 000 per year to this study. Studies such as this in my opinion goes a lot further in addressing the WQ issues with the Merrimack River then us going out and collecting samples for any rainfall event of sufficient intensity to produce a discharge during any period of the event.

Manchester would suggest that EPA provide municipalities with more flexibility to develop their own sampling protocol to address water quality issues in their MS4 community. EPA can then review each individual plan to determine if it meets the intent of the stormwater program. The EPA Stormwater section may be better served if that branch considers CSO communities requirements at their outfalls under other EPA issued permits. Municipalities working with the NHDES, watershed / pond organizations, and other entities can perform good quality sampling and make informed decisions on addressing WQ issues. Funds then can be obtained to develop and implement BMPs to address these issues.

Comment 2.3.4.6.d(ii) from Town of Seabrook - The definition of "screening" that is applied to dry weather outfall inspections is extensive and would be extremely costly. Seabrook requests that USEPA consider outfall inspections to include the visual and sensory evaluation (as described by USEPA in 2.3.4.6.d.ii) but more limited screening sampling, such as using field test kits for detergent in lieu of the nine-parameter analytical collection proposed in Section 3.2.2.

Response to comments 2.3.4.6.d(i) and (ii) – EPA recognizes that many communities have conducted an outfall inventory. EPA has revised the permit in order to clarify what prior activities may satisfy the inventory requirements of this permit. See also Response to Comment 2.3.4.6. With respect to the outfall inventory, EPA has revised this provision so that it requires only the product – the listing of outfalls and interconnections and relevant information – rather than requiring an additional screening of outfalls by communities that may have already performed this task. Where specific information was not initially collected this may be added at the time of regular follow-up screening of outfalls. The sampling component of the outfall inventory has been consolidated with the IDDE program, as discussed in the Response to comment 2.3.4.6.d(iii).

EPA understands that some entities are not regulated under the EPA program with respect to their stormwater discharges. The permit requirements for screening, however, are specifically aimed at identifying illicit discharges to the MS4 system. EPA has

established these requirements because the elimination of these clearly illegal discharges is a priority under this permit. It is the obligation of the permittee to identify and remove illicit discharges to its MS4 from other entities, whether or not regulated by EPA.

EPA agrees that analytical testing for all of the parameters identified in the 2008 draft would be costly. In an effort to reduce the cost, while still maintaining the minimum suite of parameters necessary for an effective IDDE program, EPA has revised the permit to (1) specifically permit the use of field kits and instrumentation for all of the specified parameters other than bacteria; (2) eliminate turbidity, pH and potassium from the list of required parameters; and (3) make other changes that result in cost reductions. See also Response to Comments 3.1(iii) to (vi). EPA has found that concurrent sampling for surfactants, ammonia and total chlorine, in addition to bacteria, is a reliable suite of parameters for identifying sewage inputs. High levels of ammonia (>= 0.5 mg/l), surfactants (>= 0.25 mg/l), and bacteria (> water quality standard), or high levels of ammonia and surfactants in the presence of measurable chlorine, have proven to be near certain indicators of sewage inputs.

EPA disagrees with the comment from the City of Manchester that sampling for E. coli is a sufficient indicator of an illicit discharge, along with visual inspection. It has been EPA's experience that the residual chlorine in storm sewers can result in a low or undetected bacteria enumeration, even in the presence of sanitary sewer inputs. Though indicator bacteria counts may be low or undetected as a result of residual chlorine, die-off, predation, or toxicity, associated pathogens may still persist. Furthermore, non-pathogenic pollutants (e.g., nutrients and surfactants) may be present in illicit discharges even if pathogens are suppressed by residual chlorine.

EPA applauds Manchester's involvement in a watershed restoration plan for Nutt Pond and its participation in the Merrimack River study. These are important activities that will be specifically applicable to the permit requirements related to discharges to impaired waters (Part 2.2.2). Receiving water sampling is an important element in establishing an effective water quality program for impaired waterbodies. However, although receiving water sampling can and should complement outfall screening, it is not a substitute for outfall screening and sampling in identifying illicit discharges.

Changes to permit: Permit part 2.3.4.6.d.ii, first bullet, moved to new Permit Part 2.3.4.7 and revised accordingly.

Comment 2.3.4.6.d(iii) from NHDOT - The Department sees the need to better integrate the Outfall Monitoring Program and the IDDE Program. First and foremost we need a better definition of outfall. The Department has thousands of 'cross road culverts' in which water just passes under the roadway. We also have thousands of 'Drop inlets' in which water is collected curbside in a single sumpless catch basin and immediately discharged at the toe of slope. It does not seem useful to investigate these locations. But are they outfalls?

The permit appears heavily oriented on detection of sewer interconnections. The majority of the Department's system is located within the Limited Access Right-of-Way of I-95, I-93, the

Spaulding Turnpike and the FE Everett Turnpike where there are no sewer systems. In addition, much of the highway system is in more rural areas, where again, there are no sewer systems. The Department failed to find any sewer connections in an extensive review and testing program initiated in the summer of 2006 within the urbanized area. It does not seem prudent to investigate the same outfalls especially in areas where bacterial impairments have not been identified. The permit also described in length the methods to prioritize the testing and screening procedure but in the end requires testing of all outfalls, twice! The suite of tests required is quite expensive at approximately $250 per outfall, without labor. Under this proposed regulation the Department would be required to test approximately 1,800 outfalls per year at an annual cost of over $450,000 for testing alone. Many of the locations have little or no chance of being contaminated by sewer effluent because there are no sewer systems near the storm drain systems. Testing this many outfalls would be an extremely wasteful expenditure of taxpayer funds with little or no benefit to water quality.

Response to comment 2.3.4.6.d(iii) - EPA agrees that the Outfall Monitoring Program and the IDDE Program should be better integrated. As formulated in the 2008 draft the outfall monitoring (both dry and wet weather) was primarily aimed at the identification of illicit discharges; however the 2008 draft did not clearly indicate how EPA expected or required the outfall monitoring results to be used in the IDDE Program. To remedy this, the new Draft Permit establishes a separate "Screening" element, distinct from the outfall inventory, to establish the IDDE related screening, sampling and monitoring requirements. The IDDE-related monitoring requirements that were in the 2008 draft sections for "Outfall Inventory" (2.3.4.6.d) and "Outfall Monitoring" (Part 3.0) have been consolidated in this part of the Permit. In addition, the Permit establishes a requirement that screening results be considered, along with any other new information, in an annual review of the prioritization assessment of catchments. See also Response to Comments 2.3.4.6.d.

EPA agrees with NHDOT that outfalls with no potential for illicit discharges should not be subject to IDDE-related screening requirements. The permit has been revised to exclude from the IDDE program outfalls whose catchments are undeveloped with no dwellings and no sanitary sewer. See Permit Part 2.3.4.8.c.

EPA also agrees that a better definition of "outfall" is needed and has added a definition to clarify the scope of this term.

Simple 'cross road culverts,' where water just passes under the roadway, are not outfalls. Cross road culverts need not be included in the permittee's outfall inventory, although culverts longer than a simple road crossing must be included unless they can be documented to be free of any connections.

With respect to the Department's "Drop inlets", their status depends on their location and connection to a receiving water. Drop inlets that discharge to a receiving water are outfalls, although they need not be included within the IDDE program if the contributing catchment is undeveloped with no services. Drop inlets that discharge to an identifiable channel or swale leading to a receiving water are not themselves outfalls; the outfall will

be at the point where the collecting channel or swale discharges to the receiving water. Again, if the contributing catchment is entirely roadway drainage in undeveloped areas with no sanitary sewer, these would be excluded from the IDDE program. Drop inlets discharging to upland areas where there is no channelized flow to any receiving water are not outfalls.

Finally, EPA has revised the contents of the screening requirements. The number of parameters has been reduced and field kits may be used for most parameters, reducing the analytical cost of a baseline screening to between $33 and 73 per sample. *EPA New England Stormwater Outfall Sampling Protocol* (Draft, January 2012). Attachment C to this Fact Sheet. The initial round of dry weather screening may be satisfied by screening during the previous permit term to the extent that current permit requirements are met. (This is likely to mean that outfalls that were not flowing and showed no indicators of dry weather flow need not be re-screened, while outfalls that were found to be flowing during the previous screening must be revisited for additional sampling). Wet weather sampling is limited to catchments that have been investigated under the IDDE program in areas with system vulnerability factors related to proximity to aging sanitary sewer infrastructure and aging or failing septic systems. These changes are expected to reduce to a minimum NHDOT's expenditure on testing, given the isolation of its system from sanitary services in most areas, while continuing to require sampling where it is appropriate.

Changes to permit: A new Part 2.3.4.8.d "Outfall and Interconnection Screening and Sampling" has been added.

Comment 2.3.4.6.d(iv) from Town of Exeter – For the first permit, we reported 65 outfalls. These outfalls are the end of the storm drainage piping system that picks up stormwater from streets and parking lots by draining into catch basins through a system of structures and pipes and discharges to a local waterway. Is this the correct interpretation of an outfall? Should we report outfalls that drain to a wetland? What about outlets from a detention basin?

Response to Comment 2.3.4.6.d(iv) – The term outfall refers to the point where the municipal separate storm sewer system discharges to waters of the United States. This includes not only storm drain piping but open drainage channels as well. While the question of whether a wetland qualifies as a water of the United States can in some cases be complicated, in New Hampshire the particular wetlands that receive discharges from MS4s will in most cases qualify as waters of the United States. Outlets from a detention basin to a water of the United States, wetland or otherwise, are also outfalls and are subject to the permit if they are owned or operated by the permittee. An outlet from a detention basin that enters another portion of the MS4 is not an outfall.

Changes to permit: none.

Comment 2.3.4.6.d(v) from City of Dover - Did we, the regulated community, expect the performance standards to be raised for the second permit? Yes, undoubtedly! The proposed permit requirements have moved away from establishing performance standards and allowing the community to decide how it can best be achieved based on their unique circumstances. The concept that one size will fit all is seriously flawed. For example, the proposed permit requires outfall sampling of every outfall in the community during wet and dry weather. This data may provide the Federal and State representatives a snapshot of data that is useful to their programs, but it would be money poorly spend by the community since it does not serve the local needs. Each community knows where water quality problems are likely to be. Dover has many new developments that have been inspected during the development of those sites. We know there are no illicit discharges at those outfalls. We do not need to sample fifty percent of our outfalls, or more, to find either no problem or even worse a false positive where we have to spend additional monies and resources re-sampling or looking for a non-existent problem. Why did Dover and the other Seacoast Coalition communities develop IDDE plans during the first permit cycle so we could focus our work where it was needed, and now be required to sample all outfalls regardless of the priorities we established in our IDDE plan?

Response to comment 2.3.4.6.d(v) – EPA agrees that the requirement for wet weather sampling should be targeted at areas that are most likely to find illicit discharges that are triggered by wet weather condition, such as areas with combined manholes, aging sanitary sewer infrastructure, history of SSOs, etc. Therefore, the permit requirements for wet weather monitoring have been reduced so that only those areas with System Vulnerability Factors or those discharges to impaired waters or waters with a TMDL need be sampled in wet weather. See Responses to Comment 2.3.4.6.d, 2.3.4.6.d(i) and (ii) and 3.1(i) and (ii). New developments inspected by the City of Dover during construction should not fall into these categories and would only be screened in dry weather. The priorities established by permittees during the first permit cycle remain an important starting point for assessing the priority areas in which to begin catchment investigation as well as to establish the frequency of longer term follow-up screenings. The permit language has been revised to clarify the role of prior prioritizations as discussed in the Response to Comment 2.3.4.6.d.

Changes to permit: see Response to Comment 2.3.4.6.d.

Comment 2.3.4.6.d(vi) from Town of Goffstown - The requirement to walk all stream miles seems excessive. Leaving the permittee the discretion to concentrate on suspected areas of concern seems like a more prudent use of limited resources. There is also the major issue of legal access to private property. Without the proper easements and permissions it would be trespassing for us to walk across private property. Getting access approvals for every stream mile seems like an extremely excessive requirement if no suspected problem exists.

Comment 2.3.4.6.d(vii) from City of Somersworth - The permit requires that you walk all stream miles and begin location and test of all discharges within 2 years and 3 months from the effective date under the Illicit Discharge section of the permit requirements but under the

Outfall Monitoring Program the program needs to start 1 year after the effective date. Which is it? Our recommendation would be the 2 years and 3 months.

Comment 2.3.4.6.d(viii) from Town of Amherst - Has the State of New Hampshire granted municipalities some sort of authority to walk private property as it seeks to meet the goal of walking all stream miles?

Comment 2.3.4.6.d(ix) from Town of Exeter – Walk all stream miles (walk banks of all waters of US) – This may not be possible as we have had property owners refuse giving us permission (which we must get) to walk on their property. Some areas are not accessible by boat, canoe or kayak, we have tried them all.

I am attaching a plan and a picture to give an idea of what we experience trying to conduct stream surveys. We weren't able to go much further on this section of stream than the kayak in top of picture.

Can municipalities take credit for items that the state has completed, such as stream surveys? We actually ran into a situation, where we asked waterfront property owners if they had any objections to us walking along the banks of the property. One owner responded that the state had just been there and done the same investigation that we stated in the letter that we were going to investigate. He refused us permission and questioned our time when the state had already done the same investigation. We have in a couple of cases accompanied the state during investigations.

Comment 2.3.4.6.d(x) from Town of Derry – Given the broad definition of "Waters of the US" and the specific requirement to walk "all waters in the MS4", is the permittee required under the draft permit to investigate and sample all non-permittee owned outfalls located on private property?

Response to comments 2.3.4.6.d(vi) to (x) – EPA agrees that the requirement for "walking all stream miles (walking the banks of all waters in the MS4)" may be difficult to satisfy where property owners deny access to their land. While surveying all stream miles is highly recommended, EPA does not intend to put permittees in the position of choosing between a permit violation and trespass. This requirement is therefore deleted from the Permit.

This provision of the 2008 draft was not intended to charge the operator of an MS4 with responsibility for outfalls that are privately owned and do not receive a discharge from the MS4. EPA understands that a municipality may not have access to private outfalls, although EPA expects a municipality to have the authority to access any outfall in its jurisdiction that it owns or that receives a discharge from the MS4. Requirements to investigate and sample outfalls are limited to those outfalls that are part of or receive a discharge from the MS4. It is the permittee's responsibility to locate and inventory all outfalls that receive a discharge from the MS4. EPA has revised the language of the Permit, to clarify what outfalls are included and to provide for a procedure in those cases where access to an outfall is infeasible. See also Response to Comment 3.1(ix).

With respect to timing, the Permit requires that dry weather screening of all outfalls be completed by three years from the effective date of the permit. This is a shorter schedule than under the 2008 draft but is compensated for by the deferral and reduction of wet weather monitoring.

With respect to the Town of Goffstown's comment that discretion to concentrate on suspected areas of concern would be a more prudent use of limited resources, EPA is requiring a comprehensive system-wide examination based on its experience under the MS4-2003. See also Response to Comment 2.3.4.6.d.

Changes to permit: See Response to Comment 2.3.4.6.d and 2.3.4.6.d(i) and (ii) limiting outfall inventory and screenings to "outfalls and interconnections discharging from the MS4".

Comment 2.3.4.6.d(xi) from Town of Seabrook (Strause) - I would encourage the EPA to establish reasonable schedule milestones specifically with respect to identifying in eliminating illicit connections. My thought there is to have you look at the milestones in a perspective of there are reduced municipal budgets right now, as you obviously know, for inspections and enforcement and I think that should be a priority in insuring that what you are asking us to do, the time lines you are asking us to do it in are reasonable in that context.

Response to Comment 2.3.4.6.d(xi) - EPA agrees that the 2008 draft did not establish clear timelines for implementation of the IDDE program. EPA does not expect that a comprehensive system-wide investigation will be completed within the permit term. Therefore milestones for implementation of the IDDE program have been added.

Changes to permit: A new Permit Part 2.3.4.9 has been added.

Comment 2.3.4.6.d(xii) from Roger Frymire – Initial screening and cataloging of all outfalls should include two digital photos of each outfall from the front and back when possible to document structure condition as well erosional and depositional features in line with the outfall. These pictures should be taken after labeling the outfall with a unique ID. Larger (>30") and known problematic outfalls may need a sign nearby with the ID and a phone number for public reporting of 'objectionable' flows. When an outfall is not accessible (underwater, etc.) the last accessible manhole before the outfall should be used as the sampling location. For outfalls where safety is an issue for sampling; especially in wet weather, high water, or winter; an upstream manhole should also be designated and documented.

GPS positions should be recorded for all outfalls and secondary sampling manholes in decimal degrees to five digits accuracy to the EPA data standard (XX.xxxx degrees). Handheld GPS units with this accuracy are in widespread use – such as the Garmin 76Cx unit. This is the one datum which will make all other data placed into WQX searchable by location across all variously-sourced data sets.

Response to comment 2.3.4.6.d(xii) – The permit requires labeling of outfalls in the field and spatial location. See Response to comment 2.3.4.6.d.ii and new Draft Permit Part 2.3.4.7. The permit has been revised to provide for use of the closet upstream access point where the outfall is not accessible. EPA is not requiring photographs in this permit because the benefits of photographs do not justify the additional time and expense associated with taking and cataloguing photos. See Response to Comment 3.3.2 with respect to WQX data.

Changes to permit: See Response to Comments 2.3.4.6.d(i) and (ii).

2.3.5 Construction Site Stormwater Runoff Control

Comment 2.3.5(i) from City of Portsmouth - Can the EPA provide a template for construction site inspections?

Response to comment 2.3.5(i) – EPA has provided sample construction site inspection forms on EPA's website, as part of the BMP Fact Sheet on the "Municipal Construction Inspection Program." http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=65.

Changes to permit: none.

Comment 2.3.5(ii) from UNH - This section describes requirements for projects that result in land disturbance of greater than or equal to one acre, however disturbances of less than one acre are included if those disturbances are part of a larger common plan. Please clarify the definition of "common plan." UNH has a 20 year master plan for campus development, so in one respect every project, no matter how small, could be considered "part of a larger common plan." Please indicate if a "common plan" means only related projects constructed at the same time within the same localized site. This comment/question also applies to Section 2.3.6.2.

Response to comment 2.3.5(ii) – The reference in the permit to a "common plan" is intended to reference the term "larger common plan of development or sale that would disturb one acre or more" as used in the regulations governing MS4 permits at 40 CFR § 122.34(b)(4) and (5) and in EPA's Construction General Permit (CGP). The language, "of development or sale that would disturb one acre or more," was inadvertently deleted from the 2008 draft and has been reinserted. As explained in EPA's guidance documents for the CGP, "a 'larger common plan of development or sale' is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan." With respect to facilities such as universities and military bases, EPA has clarified the term as follows:

> [Question] 2h. What is a larger common plan of development or sale at a facility like a university or military base? Is any construction considered to be part of the "larger common plan" or is there some sort of break point where unrelated

projects at different parts of the facility can be considered separate plans of development? How would this be related to projects undertaken by cities where different road projects can be separate plans?

[Answer]. The "plan" in a larger common plan of development or sale is broadly defined as any announcement or documentation or physical demarcation indicating that construction activities may occur on a specific plot of land. On a military base or university the same criteria would apply. The fact that the entire military base or university is owned by one entity is not the controlling factor. Similarly, unrelated road projects within a given city would not be considered common plan projects.

EPA, *National Pollutant Discharge Elimination System (NPDES) Stormwater Program Questions and Answers*, Chapter K, Construction Questions (2004) (http://cfpub.epa.gov/npdes/docs.cfm?program_id=6&view=allprog&sort=name). Thus, unrelated and non-contiguous projects are not considered to be part of a "larger common plan of development or sale" simply by virtue of UNH's 20 year master plan. However, UNH's interpretation of the term as applying only to "related projects constructed at the same time within the same localized site" is incorrect. The term is specifically intended to cover related construction activities that occur at different times and in different, but contiguous, areas.

Changes to permit: Part 2.3.5. has been revised accordingly.

Comment 2.3.5.3.e(i) from Town of Amherst - Without legal support by the State of New Hampshire through new legislation enforcement and penalties by a municipality directed towards the private sector for Sections 2.5 Construction Site Stormwater Runoff Control through section 2.6 Stormwater management in New Development and Redevelopment (Post Construction Stormwater Management) will be laborious and difficult to process through the NH Court system.

Response to comment 2.3.5.3(e)(i) – EPA recognizes that local ordinances are only as effective as the degree to which they are implemented and enforced. EPA has identified a number of enforcement tools that may be included in local ordinances to improve compliance, including:

- *Notices of Violation*
- *Administrative Fines*
- *Administrative Orders* - An effective tool for construction sites is the stop work order. A stop work order or a grading or building permit revocation might be issued when: a permit is violated; when development is implemented in a manner found to adversely affect the health, welfare, or safety of persons residing or working in the neighborhood or at sites undergoing development; or when there is a risk of injury to persons or property.
- *Civil Penalties*
- *Criminal Penalties*

- *Other Actions* – including bonding requirements, requirements to implement BMPs and requirements to perform restoration work

EPA, BMP Fact Sheet – Local Ordinances for Construction Site Runoff Control (http://cfpub1.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=66). The Permit requires that permittees develop enforcement procedures that incorporate appropriate enforcement tools "to the extent authorized by law" in recognition of the fact that not all enforcement tools may be available to every MS4 operator. If there are specific limits imposed by New Hampshire law that pose obstacles to effective enforcement of these ordinances, EPA encourages MS4 operators to identify them in their annual reports.

EPA also notes that many construction site compliance issues can be resolved without resort to the NH Court system. Issues such as improper installation or failure to maintain sediment and erosion controls can often be quickly corrected if the issues are brought to the construction operator's attention through a timely and thorough local inspection program. For truly intransigent violators, well-documented local inspection records can provide a foundation for escalating enforcement to NHDES under its state authority or to EPA under the Construction General Permit, in addition to being grounds for initiating action in the NH Courts. For these reasons local inspection and enforcement are essential components of an effective construction site stormwater management regulatory scheme.

Finally, EPA notes that the requirement of written procedures for site inspection and enforcement, as well as for site plan review, was not included in the MS4-2003. The permit has therefore been amended to note that permittees have one year from the effective date of the permit to complete such written procedures.

Change to permit – Part 2.3.5.3.b has been revised accordingly.

Comment 2.3.5.4 from the Town of Exeter - Exeter would prefer to have the Construction General Permit stay with EPA or at least at state level. We have a good program, but for large contractors it is better to have them know that EPA is the permit authority and that there have been large fines at construction sites that are not implementing the correct erosion control and best management practices. We can and have stepped in with "Stop Work" orders and our inspectors do get contractors to correct problems, but if it is large contractors, i.e. box store, we believe it is better to have them know they are watched by a higher authority.

Response to comment 2.3.5.4 – The description of the Qualifying Local Program ("QLP") determination provided in Part 2.3.5.4 of the 2008 draft was intended solely to provide information to permittees concerning EPA's regulatory authority under 40 CFR § 122.44(s). This regulation is applicable regardless of any language in the MS4 General Permit. Region 1 has never identified any local erosion and sediment control program as a QLP pursuant to 40 CFR § 122.44(s) and does not anticipate establishing any initiative for identifying QLPs in connection with the MS4 General Permits during

this permit term. Should Region 1 contemplate incorporating provisions of a local program into the Construction General Permit or other permit as a QLP, we would anticipate close communication with the relevant MS4 operator concerning whether such an action would be appropriate. EPA anticipates remaining a permitting authority for construction projects in New Hampshire under the Construction General Permit ("CGP").

To avoid confusion with regard to this provision, it has been deleted from the Permit. Nevertheless, if any permittee seeks QLP designation for a local erosion and sediment control program under 40 CFR § 122.44(s), EPA will review the request and may, if appropriate, designate the program as a QLP.

Changes to permit: Part 2.3.5.4 has been deleted.

Other Changes to Part 2.3.5 -

In part 2.3.5, paragraph 2, the phrase "Although there may be regulatory overlap," has been deleted as superfluous.

In part 2.3.5.3.c, bullet viii has been deleted.

2.3.6 Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)

Comment 2.3.6.4(i) from Town of Goffstown - Though LID Development is regularly reviewed the Goffstown DPW is not comfortable implementing LID systems in residential developments where the maintenance of the systems is left up to individual homeowners. We feel it is not practical to expect homeowners to understand and maintain these systems. Town maintenance personnel are already stretched too thin and cannot take on the added responsibilities of maintaining numerous homeowner LID systems. If the roadway is designed with LID systems on private property the public infrastructure will be jeopardized when the LID systems on private property begin to fail and the additional runoff makes its way into the public ROW that does not have the proper design elements to handle the additional flow.

Comment 2.3.6.4(ii) from Town of Londonderry - Construction of low impact development features and maintenance of the systems will be costly and ultimately not function as intended. Is it practical to think that such LID will function as designed in such a cold climate as what we experience in New Hampshire? Maintenance of LID features by the permittee is unrealistic.

Comment 2.3.6.4(iii) from Town of Amherst - Many public and private subdivisions have existing drainage easements, these are necessary but difficult to maintain with a small Public Works crew. Is it EPA's recommendation, by encouraging Low Impact Design (LID), that the burden of maintenance falls on the municipalities through easements or some sort of restrictions placed on the homeowner? And under what authority would that be enforced? Who ultimately decides if LID is practicable?

Comment 2.3.6.4(iv) from Steve Miller - I believe we will not make real progress on improving our water quality by effectively dealing with stormwater until there are real incentives to do so. Municipalities are not requiring new developments or re-developments to implement LID practices, the old mantra of cost-cost-cost is heard so much as to be meaningless, and the cry of "not proven" is a just false. There are so many ways municipalities could require practices and technologies that would directly result in improved stormwater management and it is time to do so.. . . Construction and Post Construction measures need stronger enforcement. And strong incentives need to be in place to help municipalities require LID practices and technologies on all new developments and re-developments.

Response to comments 2.3.6.4(i) to (iv) – EPA recognizes that many municipalities are more comfortable with traditional stormwater management practices such as curbs and gutters, pipes and detention basins, than they are with LID practices that mimic natural hydrology and treat stormwater as a resource. While traditional stormwater management has the virtue of familiarity, it has unfortunately become apparent that the traditional approach has resulted in significant damage to water quality that is difficult and costly to remedy. Under the traditional approach, the effect of development and urbanization on water resources are well known and include degraded habitat, incised channels, impaired aquatic life, high pollutant loads, depleted and contaminated groundwater, and higher incidence of flooding, among others. See EPA, *Incorporating Low Impact Development into Municipal Stormwater Programs*, 901-F-09-005 (April 2009). LID represents a paradigm shift in approach to reduce runoff and to mimic a site's predevelopment hydrology by infiltrating, filtering, storing, evaporating, capturing for reuse, and detaining stormwater runoff that EPA considers crucial for protecting water quality moving forward.

EPA disagrees with the comment that LID features will not function in cold climates. Research performed by the UNH Stormwater Center has produced encouraging results on the effectiveness of LID practices in winter conditions. As stated in the UNHSC 2009 Biannual Report:

> **LID Weathers the Cold:** As a long-term field research program based in New England, UNHSC is uniquely suited to monitoring stormwater treatment system performance over a wide range of seasonal conditions. With four years of data complete, UNHSC research demonstrates that Low Impact Development (LID) stormwater treatment systems function well in the harsh winters of cold climate regions. This finding contradicts widely held perceptions that LID systems do not perform as well as more conventional systems in winter conditions. In fact, UNHSC researchers have observed that conventional systems, such as swales, actually perform less effectively in winter months.

EPA understands that LID, to the extent it relies on small scale features that may be sited on private property, presents operation and maintenance issues that must be addressed differently from traditional stormwater structures. The Permit identifies several mechanisms for ensuring adequate long-term operation and maintenance (O&M) of these practices, based on experience in jurisdictions that have required LID-based

stormwater management for as much as two decades. Depending on the mechanism selected by a particular MS4, the burden of operation and maintenance may fall in the first instance on the homeowners, through deed restrictions, requirements for homeowners associations and/or annual certification requirements that O&M has been performed. Or, the burden may fall on the MS4, through acceptance of the BMPs, accompanied where appropriate by dedicated funds or escrow accounts for long term O&M. Cooperative arrangements such as maintenance contracts with the permittee, are also an option. In any of these cases, the permit requires that the permittee have authority to ensure long term O&M under its development/ redevelopment program for all types of BMPs.

For these reasons, EPA is encouraging MS4s to incorporate LID requirements into their new development/redevelopment program. At this time, however, EPA does not intend to mandate the inclusion of LID requirements in these programs but to allow MS4s to determine the extent to which LID requirements are appropriate in their jurisdiction. The permit has therefore been revised to clarify this provision.

Furthermore, EPA is aware that since the 2008 draft was released, the state of New Hampshire has promulgated a set of stormwater performance standards through its Alteration of Terrain regulations and has published the New Hampshire Stormwater Manual. EPA believes that the stormwater standards established by NHDES are an appropriate alternative to the one inch capture standard included in the 2008 draft, and that a consistent statewide standard would benefit both permittees and developers. A similar approach was taken in the Massachusetts Small MS4 draft permits, which require adoption of a subset of the Massachusetts Stormwater Standards, while encouraging the capture of one inch of rainfall. The permit has therefore been revised to require adoption of the design criteria set forth in the New Hampshire Stormwater Manual, Volume 2.

Changes to permit: The permit text of Part 2.3.6.3. and Part 2.3.6.4. has been revised accordingly.

Comment 2.3.6.5 from City of Portsmouth - Requirements for as-built drawings within 90 days is not reasonable. Permittees should be allowed to provide at least one year for developers to submit as-built plans.

Response to comment 2.3.6.5 – EPA believes that in most cases 90 days is sufficient time for submission of as-built drawings, and that allowing one year for submission creates a risk that this crucial step will be missed with the passage of time. Nonetheless, EPA does not intend to be overly prescriptive in the procedures used by MS4 operators to implement their post-construction stormwater program and is therefore revising the requirement so that permittees may select their own deadline for submission, so long as it is no longer than one year from completion of construction. Permittees remain responsible for ensuring that as-built plans are submitted and should implement procedures that ensure that submission occurs in a timely fashion.

Changes to permit: The permit text of Part 2.3.6.5. has been revised accordingly.

Comment 2.3.6.6 from CLF et al. - We strongly support the draft permit's requirements that permittees affirmatively assess street design and parking lot requirements to assess opportunities to reduce paved areas (Section 2.3.6.6); affirmatively assess local regulations to identify opportunities for LID (Section 2.3.6.7); and affirmatively assess and track acreage of impervious area and directly connected impervious area ("DCIA"), and retrofits to MS4-owned property and infrastructure (Section 2.3.6.8). It is essential, of course, that the permit not be implemented in a manner that generates multiple assessments without subsequent *action* – i.e., the actual adoption of new local regulations and standards, and actual retrofits that reduce DCIA. The permit should make clear that following such assessments, certain substantive requirements must be met, such as the actual adoption of legislation that not only allows, but requires, LID.

Response to comment 2.3.6.6 – EPA acknowledges CLF's support of these requirements. These requirements are intended to encourage permittees to revise regulations to reduce impervious surfaces, encourage LID and green infrastructure, and to identify and implement retrofit BMPs where appropriate. While the permit does not require specific substantive steps to implement the results of these assessments, the assessments will assist permittees in meeting substantive requirements, such as the requirement to identify additional or modified BMPs to address pollutant discharges to impaired waters under Sections 2.2.1 and 2.2.2. The permit also requires annual reporting of progress in meeting the recommendations that result from the assessments.

Changes to permit: none.

Comment 2.3.6.7 from Town of Goffstown - Early assessment of wide-scale pervious pavement use in our northern climate does not look promising or practical.

Response to comment 2.3.6.7 – EPA disagrees with the comment's assessment of pervious pavement use in the climate of New Hampshire. While research is ongoing in this field, research conducted by the University of New Hampshire Stormwater Center (UNHSC) into the use of pervious pavement, including testing pervious pavement installations on the UNH campus, is yielding encouraging results. The conclusion from this research has been that properly designed pervious pavement exhibits excellent year round performance and a longer life cycle than conventional pavements. *See* "Pervious Pavement", *Stormwater* (September 2008), http://stormh2o.com/september-2008/pervious-asphalt-concrete.aspx. Pervious pavement installation has also been found to allow up to a 75% reduction in salt use for winter maintenance, an important water quality consideration given the number of chloride-impaired waters in the state. *Id.*; UNHSC, *Fact Sheet - Winter Maintenance Guidelines for Porous Pavements*, http://www.unh.edu/erg/cstev/pubs_specs_info/winter_maintenance_fact_sheet.pdf. The UNHSC has produced design specifications for porous pavement installations targeted for New Hampshire installations, as well as fact sheet and other informational material. These are available at the UNHSC website at http://www.unh.edu/erg/cstev/pubs_specs_info.htm#factsheets. However, EPA notes

that installation of pervious pavement is not a requirement of the permit. Permittees may make their own determination as to whether and to what extent to use such pavement.

EPA expects that conducting the required review of the feasibility of green infrastructure practices will be an opportunity for permittees to familiarize themselves with the most current data and information concerning these practices. There has been significant research and effort in improving and refining green infrastructure practices, and there are now many design resources available that respond to problems encountered in the early installations of some of these practices. EPA's website, *Managing Wet Weather with Green Infrastructure*, provides links to many, though by no means all, resources on this issue (http://cfpub.epa.gov/npdes/home.cfm?program_id=298). Reviewing this material in the context of local regulations will give permittees an opportunity to identify design criteria to ensure that any green infrastructure installations will be successful.

Changes to permit: none.

Comment 2.3.6.8.a(i) from NHDOT - The Department has major concerns with the requirements to inventory Directly Connected Impervious Area and subsequent reporting. We lack the legal authority to comply with this requirement. State regulations only allow the Department to enter private property to evaluate the need to condemn for highway purposes or to determine the highway boundary. The activity described by the permit would not be allowed under state law.

Response to comment 2.3.6.8.a.i – EPA is not requiring entrance onto private property in order to inventory Impervious Area (IA) and Directly Connected Impervious Area (DCIA). IA mapping is generally performed through aerial photography or, particularly in the case of roadways, based on existing data regarding pavement widths and road miles.

For purposes of transportation agencies and nontraditional MS4s, the permit is intended to require tracking of IA and DCIA that is on property owned and operated by the MS4. NHDOT is therefore not responsible for mapping or tracking IA and DCIA where the state does not own property or have easements.

Changes to permit: none.

Comment 2.3.6.8.a(ii) from City of Manchester - The requirement is to estimate the impervious area within one (1) year. Manchester has accomplished this via the completed GIS inventory mapping. Many communities are not as far along as Manchester. This requirement should dovetail with the three year mapping requirement. Another 60 days should be given to complete the delineation. The time frame should be changed to consider this.

Comment 2.3.6.8.a(iii) from City of Dover - Requiring the communities to prepare impervious area mapping for the whole community will be costly. The effort should target only densely developed areas where disconnecting IA could help in reducing runoff.

Response to comments 2.3.6.8.a(ii) to (iii) – EPA's intent in requiring impervious area mapping and tracking is focused on tracking changes in IA and DCIA during the permit term. It is not intended to require extensive effort to develop a baseline IA/DCIA estimate at this time. For this reason, the 2008 draft stated that "EPA will provide for the permittee's use estimates of IA and DCIA for each regulated small MS4 in New Hampshire." EPA has determined that a uniform statewide dataset for impervious area is not available and therefore has removed that language from the permit. The Draft Permit still requires reporting on changes in IA/DCIA during the permit term, which must be reported by sub-basin and receiving water. Permittees have one year from the effective date of the permit to develop a procedure for tracking IA/DCIA by sub-basin and receiving water.

In addition, two errors in the 2008 draft have been corrected in the new Draft Permit. First, the reference to sub-basins and watersheds contained in the "New Hampshire Hydrographic Database" has been replaced with the "Level 6 Hydrologic Unit Boundaries for New Hampshire." Second, the 2008 draft incorrectly indicated that swales or detention basins would be considered to be disconnected impervious areas, while for purposes of accounting in this permit impervious areas connected by swales or detention basins should be considered direct, or at most partially indirect connections. The Permit has been revised to correct these errors.

Changes to permit: The permit text of Part 2.3.6.8.a. has been revised accordingly

Comment 2.3.6.8.b(i) from City of Portsmouth - The requirement to complete an inventory and prioritization of MS4-owned property and infrastructure that may have the potential to be retrofitted is a burdensome and inappropriate requirement. The City of Portsmouth owns 184 parcels of land totaling 1,140 acres. The City estimates a cost of at least $54,000 to complete this task. Those funds could be better spent on already identified storm water treatment infrastructure needs and operational activities. Retrofits should be applied as corrective measures for areas that are already impaired from polluted stormwater runoff, or as opportunistic when a property is already planned for redevelopment. This requirement should be removed from the General Permit.

Comment 2.3.6.8.b(ii) from CEI - The priority ranking evaluation should consider the results of the efforts under Parts 2.3.4.5-6, 2.3.7.1(d) and 3.1.2-3. This may result in a more effective evaluation of the overall drainage system needs and the potential for water quality improvements, which includes retrofit opportunities. For example, the results of drainage system inspections under Part 2.3.7.1(d)(iv) may reveal problem areas that rank higher based on the opportunity for pollutant removal relative to cost.

Comment 2.3.6.8.b(iii) from NHDOT - The potential stormwater treatment structure retrofit inventory described in the permit would be an immense undertaking. All items to be included are typical of a fully designed project and require survey, subsurface investigation and coordination with outside entities. This fully designed project would then stretch over 627 miles, and would be extremely costly. In addition, we may be investigating and possibly investing in areas where there are no identified impairments, and in areas where there are

identified impairments, the NHDOT highway may not be the root cause. Again, the EPA has left out the critical step of a TMDL to identify loads, responsible parties and potential load reductions. The retrofit plan is essentially the first step of a TMDL implementation plan for which there is no TMDL study to support it. The permit should reflect the established TMDL process.

Response to comments 2.3.6.8.b(i) to (iii) – It is not EPA's intent that each and every parcel owned by the MS4 be subject to a detailed retrofit analysis, nor that the inventory consist of fully designed projects for each potential retrofit. Rather, the purpose of the retrofit inventory and priority-ranking is to identify locations within the MS4 that present the best available opportunities for mitigating IA and DCIA so that retrofit BMPs can be considered as properties are planned for redevelopment or reconstruction, in decision-making concerning possible uses for MS4-owned properties, as additional BMPs to address impaired waters as required under Part 2.2, as opportunities for funding (e.g. grant programs) arise, etc. EPA believes that identifying potential locations and concepts for BMPs is an important planning tool that will assist permittees in their obligation to reduce discharge of pollutants to the maximum extent practicable and satisfy other permit requirements.

To clarify the nature of this requirement, the permit language has been revised to indicate that the inventory need not include every MS4-owned property, but only those that are identified as having some potential for retrofitting based on a screening-level analysis. This would include municipal property with significant impervious cover (including parking lots, buildings, and maintenance yards); open space and undeveloped land available to mitigate impervious cover and associated stormwater from nearby offsite properties; and existing street right-of-ways, outfalls and conventional stormwater conveyances and controls (including swales and detention practices) that could be modified to provide mitigation of impervious cover. In addition, the permit language has been revised to clarify that this analysis does not require full design, but is intended to be a screening level analysis based on available data and producing retrofit concepts, not design documents.

EPA agrees with the City of Portsmouth that areas that are already impaired from polluted stormwater runoff, as well as opportunities when a property is already planned for development, are valid grounds for prioritizing specific retrofit opportunities. These factors were included among the prioritization factors to consider in the 2008 draft. EPA also agrees that the additional factors identified by CEI may also be useful for prioritization and notes that the permit language allows permittees to select additional prioritization factors that are appropriate for local circumstances. EPA does not agree that this requirement forces detailed investigation and investment in areas where there are no impairments or the MS4 is not the root cause of an impairment, or that this requirement amounts to a TMDL implementation plan. The permit has been revised to clarify that this is a screening level analysis that is designed specifically to allow permittees to prioritize to address problem areas.

Changes to permit: The permit text of Part 2.3.6.8.b. has been revised accordingly.

2.3.7 Good House Keeping and Pollution Prevention for Permittee Owned Operations

Comment 2.3.7.0(i) from Steve Miller – Municipal operations should be the model for all to follow and our citizens should play a role in these efforts.

> **Response to comment 2.3.7.0(i)** - EPA agrees that municipalities have the opportunity to provide an example for the community due to the visibility of and public interest in their operations. EPA also agrees that citizens should play a role in the efforts of developing and implementing an effective stormwater management program. The public participation requirements under part 2.3.3 of the permit are intended to provide meaningful opportunities for citizens to play such a role. EPA notes, however, that the Clean Water Act standards govern the requirements under this permit, and that these may differ from the commenter's conception of a "model for all to follow".
>
> *Changes to permit: none.*

Comment 2.3.7.1.b(i) from Town of Exeter - The Town has no authority over schools. If they discharge to our drainage system we can request certain information and encourage BMPs but it will be very difficult to have them complete all requirements of the Good Housekeeping and Pollution Prevention BMP. They are similar to a private institution.

Comment 2.3.7.1.b(ii) from Town of Londonderry - Municipalities and School Districts typically are separate political entities who do not work under the same control.

Comment 2.3.7.1.b(iii) from City of Somersworth - The permit requires that we develop operation and maintenance procedures for the Schools which are not under my (City) control. The school department is a separate governmental function run by a school superintendent with a separate budget. The school department is then not under any obligation to follow the recommended procedures. They are also not required to submit a Storm Water Pollution Prevention Plan (SWPPP) under section 2.3.7.2. Why? Is it the expectation of the EPA that the City government will do this work for the School department? Our recommendation is that the School properties be dropped from the requirements entirely or the permit re-written to make them directly responsible for their own compliance and permitting under the permit.

Comment 2.3.7.1.b(iv) from Town of Goffstown - Though the Town continues to try to work with the School District, the Town school system is a separate political entity not under the control of the Board of Selectmen.

Comment 2.3.7.1.b(v) from Town of Derry - In many municipalities, the school district and emergency services (fire department) are separate from the main municipal operations (Public Works) responsible for managing the stormwater program and are thus funded under different programs.

> **Response to comments 2.3.7.1.b(i) to (v)** – As noted in the comments, public schools in the State of New Hampshire are owned and operated by Districts that are public

corporations established under State law and with State oversight. See N.H. Rev. Stat. Ann, Title XV, Chapter 194. While a complete analysis of municipal-school overlap under New Hampshire law is beyond the scope of this Fact Sheet, EPA agrees that if, and to the extent that, a public school district is an entirely separate political entity created under state law, it is not part of the same MS4 as the city or town in which it is located. Cities and towns that do not own or operate schools are therefore not required to meet the permit requirements for school properties that are located within their jurisdiction unless the stormwater systems at those properties are operated by the relevant municipality.

School districts, however, are themselves regulated MS4s if, and to the extent that, they operate separate storm sewer systems within an urbanized area, under the definition set forth in 40 CFR § 122.26(b)(16) and Part 1.2.1. Such entities are considered "non-traditional" MS4s, as they are not operated by traditional cities and towns, and are subject to the MS4 General Permit provisions detailed in Part 6.0. Note that Part 1.1 of the 2008 draft has been modified to make clear that "Nontraditional" MS4s within the State of New Hampshire includes MS4s operated by federal, county, and other public bodies as well as by the State of New Hampshire. To the extent that Part 1.1 appeared to indicate that only state nontraditional MS4s were included within the permit coverage, this was an oversight by EPA and has been corrected as set forth below. Where a school district meets the definition of a regulated MS4 it is independently obligated to obtain coverage under this Permit. Thus, one solution to the concern raised in these comments is that a local school district can submit a NOI as a MS4. However, in those cases where school districts operate MS4s that connect or are in close proximity to traditional MS4s, EPA encourages both entities to consider cooperative arrangements to meeting the General Permit requirements.

To the extent that particular functions are "separate" from the public works function but fall under the ultimate control of the same municipal entity, as may be the case with emergency services, such functions are within the scope of a traditional MS4 jurisdiction within the meaning of the permit. This is the case even if services are funded under separate programs. Particular cost-sharing arrangements among municipal functions are a matter for individual municipalities to resolve. EPA encourages municipalities to recognize that the MS4 General Permit is the responsibility of the municipality as a whole, not just the public works department, even if it is public works that conducts the bulk of the physical work required by the permit.

Changes to permit: The permit text of Part 1.1. has been revised accordingly

Comment 2.3.7.1.b(vi) from City of Manchester - The requirement of developing an inventory of all floor drains within all permittee owned buildings is moving outside the intention of the stormwater permit. The permit is to address stormwater discharges. These drains are interior and will not be subject to rainfall events. These are typically covered under the industrial pretreatment regulations as outlined in 40 CFR Part 403. This requirement goes beyond what was required in the MSGP. The interior floor drains discharge to sanitary sewers

and is subject to plumbing codes to ensure that they indeed discharge to the sanitary and not the storm sewer. I would suggest that this requirement be removed from the permit.

Comment 2.3.7.1.b(vii) from UNH - Section 2.3.7.1.b Buildings and facilities requires the permittee to develop an inventory of all floor drains within all permittee-owned buildings within 6 months of the effective date of the permit, ensure that all floor drains discharge to appropriate locations, and update the inventory annually. This represents a major project that will take considerable time and expense; especially considering all the other permit requirements that are supposed to be completed within the first year. Because all UNH buildings are permittee-owned, we have 5.5 million square feet of space that would need to be surveyed for floor drains. This is a questionable allocation of resources considering that most floor drains have very little annual flow and are typically connected to the sanitary sewer, not the storm sewer. UNH conducted an extensive dye-test and smoke-test program to check for connections between stormwater and sanitary sewer systems. Please consider giving permittees an option to implement an on-going smoke and dye testing program as an alternative to conducting a floor drain survey. If it is necessary to keep the f1oor drain survey requirement, consider delaying this requirement until the next 5 year permit cycle, or at the least moving it to the 4th or 5th year of the proposed new permit.

> **Response to comments 2.3.7.b(vi) and (vii)** – EPA believes that examination of floor drain connections that present an unusual risk of illicit discharge, such as from maintenance shops, is an appropriate requirement to ensure that there are no improper connections to the MS4. However EPA recognizes that other public buildings may contain numerous floor drains from public bathrooms, school and dorm showers, etc., that do not present such a risk. As such, the universal requirement as expressed in the 2008 draft is inefficient and unnecessary, particularly as floor drains in vehicle maintenance and public works facilities are addressed in Part 2.3.7.2. EPA is therefore removing this requirement from Part 2.3.7.b. The revised Permit requires addressing floor drains only in connection with facilities subject to the SWPPP requirements of Part 2.3.7.2.
>
> *Changes to permit: The permit text of Part 2.3.7.1.b. has been revised accordingly.*

Comment 2.3.7.1.b(viii) from Town of Derry – This subparagraph requires significant overlap of various regulations including SPCC, hazardous waste, plumbing codes, etc. It assumes that local building codes and that nationally accepted standards are inadequate and must be verified and reverified on a continual basis . . . It is understandable that "old" buildings and facilities may be in question. A MS4 who facilities are newer and were required to comply with current nationally accepted building codes should not be required to verify its own building inspections. The permit should just reference that the Permittee conduct an evaluation of applicable pollution prevention programs to ensure full compliance with all applicable regulations and requirements that could result in exposure of pollutants to stormwater.

> **Response to comment 2.3.7.1.b(viii)** – This portion of the permit is intended to ensure a coordinated approach to facility operations that may result in exposure of pollutants to stormwater. To the extent that existing programs applicable to spill prevention, hazardous waste and waste management have been implemented at specific facilities, a

permittee's evaluation would presumably consist of a review of such programs as suggested in the comment. To the extent that facilities are not covered by existing programs, adequate procedures must be developed. EPA believes that it is reasonable to require that permittee procedures affecting stormwater be reflected in the SWMP even if they overlap with other requirements.

Changes to permit: none.

Comment 2.3.7.1.d.i(i) from CEI – This part needs to include provisions for MS4s to comply with an alternative method for catch basin cleaning that is based on actual field data, for example. The 2003 permits suggested that MS4s clean catch basins at a frequency based on inspection results, which may identify areas that required more frequent cleaning. The MS4 should be allowed demonstrate the appropriate frequency for catch basin cleaning rather than following a strict requirement to clean every other year.

Comment 2.3.7.1.d.i(ii) from Town of Derry – The draft permit is overly prescriptive and lacks any flexibility relative to catch basin inspections and cleanings, and street and sidewalk sweeping. Under the MS4-2003, efforts were made to inspect and clean all MS4 catch basins. The goal was to collect information to develop an efficient and logical cleaning schedule for all catch basins within the MS4. Some may require annual cleaning while others require cleaning on a much less frequent basis (every 3-4 years). It is not prudent to ignore the data collected by permittees under the MS4-2003 and requiring more frequent cleaning when not necessary. Given that most catch basin cleaning contracts are on a per-catch basin basis, it would also lead to unnecessary expenditure of funds for contractors to have to inspect/clean catch basins that do not need to be. The permit should allow flexibility to existing permittees to develop their own schedule based on their knowledge and experience within their own MS4. This will allow a more efficient and cost-effective program for each permittee.

Comment 2.3.7.1.d.i(iii) from Town of Goffstown - The requirement to inspect every catch basin annually and clean them at least every other year is excessive. If a town has developed a monitoring and cleaning program that identifies a cleaning schedule that assures the basins are being adequately cleaned, there should be an acceptance mechanism for that system rather than a random time frame.

Comment 2.3.7.1.d.i(iv) from City of Manchester - The requirements under Roadways and Storm Sewers requires the following; *"Catch basins shall be inspected annually, Catch basins shall be cleaned a minimum of once every other year."*

This requirement is the most expensive cost to all Phase II communities throughout New England. This would be very costly to the City of Manchester. The City has l4,000 catch basins in its system. The cost to clean half of the basins every year would cost the City approximately $350,000 per year and the cost to inspect the other half of the catch basins would be approximately $350,000 per year. There is also a requirement to inspect all stormwater structures annually. The City has 3,000 drainage manholes that would cost approximately $150,000 per year to inspect them. Total compliance cost for just this part of the permit would exceed $850,000 annually.

Currently, as documented in the past five year annual stormwater reports, Manchester cleans between l,800 and 2,000 catch basins (about 15% of the City's basins). One thousand of these are hired out to a private contractor and between 800 to 1,000 are completed by the City. The catch basin contractor also works for other communities and the NH DOT. We are hard pressed to get them to fulfill their commitment of 1,000 catch basins cleaned annually.

The City has two vactor trucks. These are used to clean sewer and drain lines, clean siphons, clean sewer manholes as well as drain manholes along with use for emergency blockages and root cutting. Neither Manchester, nor other communities could fulfill this requirement as there is not nearly enough equipment to get this work completed. Manchester would have to buy a third and possibly a fourth vactor truck or, discontinue the sewer drain and siphon cleaning program. This is in direct conflict with the CMOM requirements of our NPDES. As you can see this places Manchester along with all other communities between a rock and a hard place and sets every permittee up for failure. It may be prudent to place the 20% criteria for cleaning in the permit to cover the five-year permit cycle. Manchester could struggle to go from l5% to 20% and probably accomplish this, but it would be improbable to go from 15% to 50%.

The above rationale would also apply to the inspection requirement. Rather than 100% every year, Manchester believes that an easing into the program of 20% a year is the upper end of the labor intensive limit without adding staff to the already anticipated $875,000 annual increase the current proposal requires. The dry weather screening reflects this rational, and as the catch basin cleaning and inspection is so much more labor and cost intensive, justifies completing this requirement over the five-year permit cycle.

The City of Manchester currently does the following for the stormwater program. The system is 60% combined. Most of the catch basins, drainage structures, and storm sewers discharge to the combined system and therefore to the Wastewater Treatment Facility. Currently the City cleans all the catch basins that surround the urban ponds twice per year to protect these water bodies from sediment loadings. The structural BMPs such as baffle tanks, forebays, and particle separators get inspected twice per year and they get cleaned at least once per year. Many do get cleaned twice per year. Our crews also clean some other catch basins. The City of Manchester contracts out catch basin cleaning above what they clean with their own crews. The contractor cleans approximately 1,000 basins per year based on the funds allocated.

Our past five annual reports have shown that this is adequate to address stormwater issues from the previous permit. We believe a continuation of this level of effort, with a modest incremental increase in expectations is warranted, but not to the level as proposed in the draft permit.

Comment 2.3.7.1.d.i(v) from NHDOT - The catch basin cleaning requirement is unclear and overly simplistic. There are many variables to determine when a catch basin should be cleaned that are not accounted for in this regulation. The Department agrees that catch basin inspection in important. However, not all catch basins are the same. Many of our catch basins do not have sumps and therefore have no ability to collect sediment. Many are located in ditches well off the travelled way where inductor trucks cannot reach. Many do not accumulate sediments as the Department has mostly eliminated sand from its winter maintenance practices. The regulation

clearly states "catch basins shall be cleaned a minimum of once every other year . It would be unreasonable to clean a catch basin with no sump, tear up a well-vegetated swale trying to reach a basin off the pavement or clean an inch of sediment out of a three-foot sump. The EPA needs to give the Department flexibility to assess its catch basins and develop a cleaning program. Cleaning a catch basin is not cheap. Each cleaning costs approximately $50 per location. Currently, the Department has approximately 8 000 catch basins in the urbanized areas and to clean 4 000 basins a year, especially if they do not need to be cleaned, would be wasteful and would not be any more protective of water quality than just monitoring them until they need to be cleaned.

Comment 2.3.7.1.d.i(vi) from the City of Portsmouth – The City of Portsmouth developed a catchbasin inspection, cleaning and repair schedule as part of a Stormwater Master Plan project. The program includes inspection of all catchbasins annually and cleaning any that have sediment within 6-inches of the lowest invert in the structure (estimated to be approximately 20 to 25% of the structures). To require cleaning of an additional 25% of structures, whether they need it or not, would cost the City an additional 1000 labor hours. The requirement for cleaning within a given time frame should be removed if annual inspections are required.

Comment 2.3.7.1.d.i(vii) from UNH - Consider allowing flexibility for permittees, such as UNH, who have established catch basin cleaning schedules based on inspections and historical experience. We have catch basins in lawn areas that only need cleaning every 5 years. Consider changing the minimum to once every 4 years so that permittees can allocate scarce resources to more effective stormwater measures. The requirement that frequency be increased if excessive accumulation of sediment is observed will ensure that catch basins are cleaned at the appropriate intervals, but not more often than necessary.

Comment 2.3.7.1.d.i(viii) from City of Somersworth - This past year the City spent approximately $10,000 for an outside contractor to clean catchbasins. This allowed us to clean 175 out of the 1,350 basins we have in the City. This works out to approximately 13% of the basins we own.

We would recommend that the goal should be set at 15% for the first year. Then each following year an additional 2.5% more so that at the end of the 5 year permit period we are up to 25% of our basins. Then in the next 5 years we could increase our annual number by 5% per year so that we arrive at 50% of all the basins in the 10th year. This recommendation would allow us to ramp up the cost and labor required to get all of the basins cleaned. The second reason for allowing us to ramp up to the 50% number is that we do have the equipment to do this on our own. We expect that there may not be enough outside contractors to get the work done between April and November for all of the communities involved.

> **Response to comments 2.3.7.1.d.i (i) to (viii)** – Upon review of the comments, EPA agrees that permittees should be provided greater flexibility to design a catch basin cleaning program that is based upon the permittee's actual experience and inspection results. Therefore, EPA is revising this requirement. Rather than a specific frequency for cleaning catch basins, the Permit requires the municipality to optimize its frequency of routine cleaning with a goal that no catch basin shall be greater than 50 percent full.

In addition, for catch basins in catchments tributary to waters impaired for TSS, metals or nutrients the Permit requires municipalities to ensure that all catch basins are no more than 50% full. The municipality must increase the frequency of cleaning of specific catch basins or in identified areas if evidence suggests that material is accumulating more quickly than in other catch basins. Basins in priority areas may also require more frequent cleaning.

The revised permit language is intended to set a minimum standard of performance while providing municipalities with the flexibility to target catch basin cleaning resources where they are most needed, based on data they have developed concerning their individual systems.

EPA understands that the City of Portsmouth has developed its own performance measure that requires cleaning only when sediment has reached within six inches of the lowest invert in the structure. However, EPA is requiring use of a 50% full threshold as consistent with available guidance on appropriate cleaning frequencies. See Stormwater Managers Resource Center, *Pollution Prevention Fact Sheets: Catch Basins*, http://www.stormwatercenter.net/Pollution_Prevention_Factsheets/CatchBasins.htm; UNHT2, *Catch Basin Cleaning*, http://www.t2.unh.edu/winter02/pg7.html. EPA does not believe that a 6" buffer is sufficient. Research on catch basin efficiency indicates that catch basins only retain sediment up to approximately 60% full; above that level storm flows may bypass treatment or resuspend sediments previously captured. SMRC, *supra* (citing Pitt, R. *Bellevue Urban Runoff Project, Final Report* (1985)).

EPA also recognizes that increases in cleaning frequency as required under this permit have potential to lead to short term shortages in equipment or contractor availability. However, EPA believes that shortfalls in contractor availability will be resolved in response to the increasing demand.

With respect to suggestions for reduced goals such as 15% or 20% of all catch basins each year, EPA is not specifically addressing these comments due to its decision to use a performance based requirement to replace the requirement to clean every catch basin every other year. The percentage of catch basins to be cleaned each year will depend on the rate at which they fill, which will vary among municipalities. MS4s who find their catch basins filling more rapidly are encouraged to implement measures to reduce sediment loads to those catch basins to reduce the burden of this requirement. The six month time deadline for establishing the program has been extended; permittees shall have one year from the effective date to establish their programs.

Finally, EPA notes NHDOT's comment that some of its catch basins do not have sumps. EPA has generally considered catch basins to be characterized by the presence of sumps. *Id.* As the revised requirement mandates cleaning based on how full the sump is, however, such sump-less inlets will not require cleaning. With respect to the City of Manchester's comments regarding the portions of the system that drain to the wastewater treatment plant, EPA notes that the catch basin cleaning requirements of the

MS4 permit apply only to the separate storm sewer system in those municipalities with both combined and separate systems.

Changes to permit: The permit text of Part 2.3.7.1.d. has been revised accordingly.

Comment 2.3.7.1.d.i(viii) from the City of Manchester - The municipalities that own or discharge to a Wastewater Treatment Facility are required to develop a Capacity, Management, Operation, and Maintenance (CMOM) program for their collection system under the NPDES permit requirements. I suggest that the EPA allows the communities to maintain their collection system including the storm sewer system under their CMOM requirements. They can develop their cleaning schedule based on their knowledge of their system, not have a general requirement for everyone. It is a way to integrate the maintenance of the storm and sanitary sewers together whether the system is combined in the case of Manchester or separate.

Response to comment 2.3.7.1.d.i(viii) – The Small MS4 General Permit applies only to the separate storm sewer systems operated by a municipality. Catch basins that are part of a combined sewer system are not subject to the requirements of this permit. See Permit Part 1.2.1; 40 CFR § 122.26(b)(8)(iii). As noted in the comment, the operation and maintenance of the combined sewer collection system is subject to independent permit requirements, as set forth in the NPDES permits for the relevant municipal publicly owned treatment works. As a general matter, stormwater that is processed through a combined system will, under normal conditions, receive some treatment at the treatment works. In contrast, stormwater that is collected through a separate system is often discharged directly to the waterbody, without any treatment. Consequently, catch basin (and other) requirements for separate stormwater systems (such as those addressed by this permit) often differ from, and may be in some respects be more stringent than, analogous requirements applicable to combined systems.

Should a municipality find it useful to consolidate their separate and combined storm sewer maintenance and operation programs into a single CMOM program, EPA would have no objection so long as the independent permit requirements applicable to each type of system are met.

Changes to permit: none.

Comment 2.3.7.1.d.ii(i) from NHDOT - The street sweeping requirement is overly simplistic and wasteful. The twice a year sweeping of a low speed, curbed, urbanized street may be warranted. However, the same standard makes little sense for a high speed uncurbed interstate highway. We are assuming EPA is targeting accumulation of sand on the shoulder of the roadway for the spring sweeping. The Department uses very little sand during the winter. The sand that is applied during very cold weather is usually pulverized by high-speed traffic, lifted into the air and blown off the side of the roadway. We assume the fall sweeping would address leaves, which are even more easily swept off the roadway by high-speed traffic. Street sweeping is expensive, costing the Department approximately $10 per mile. The Department should have the ability to inspect the 250 miles of roadway shoulders to determine the need, and document where sweeping would be appropriate.

Comment 2.3.7.1.d.ii(ii) from Town of Derry – The draft permit is overly prescriptive and lacks any flexibility relative to catch basin inspections and cleanings, and street and sidewalk sweeping.

Response to comment 2.3.7.d.ii(i) to (ii) – EPA agrees that the requirement for twice a year street sweeping may not provide reasonable flexibility in addressing the different needs of different MS4s and therefore has modified this requirement. The Permit now includes a minimum street sweeping frequency of one sweeping per year (spring) for streets other than high speed limited access highways, with a requirement to target areas for more frequent sweeping based on factors determined by the permittee in order to reduce pollutant loads. For highways, permittees have the option of developing and implementing an inspection, documentation and targeted sweeping program in lieu of the minimum requirements.

In making this reduction, EPA notes available literature also indicates that the most substantial benefits are seen from higher frequency sweeping programs (monthly or biweekly) and those using modern high efficiency equipment. Further, there can be a significant difference in pollutants loads among different streets within a community. Given this background, it is apparent that there may be more effective approaches to street sweeping than a blanket twice per year requirement. For example, the same level of funding used to sweep an entire community a second time might be used to sweep the 20% of roads with the highest pollutant loads (i.e. industrial and commercial areas) five times, providing monthly sweeping from April to October. This would be expected to provide greater pollutant reduction benefit for the same or lower cost (cost per curb mile may be lower if all streets are not being swept at once). This approach is consistent with available recommendations for street sweeping program design and the MEP standard. It also appears to be consistent with actual practice; voluntary metrics that EPA has collected during the MS4-2003 permit term show that a majority of communities sweep all streets once/year and commercial areas more frequently http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/NH-SWMP-Summaries-Metrics-Yr-9.pdf

Changes to permit: The permit text of Part 2.3.7.d.ii has been moved to 2.3.7.d.iii. and has been revised accordingly

Comment 2.3.7.1.d.ii(iii) from UNH - UNH uses vacuum equipment for fall leaf cleanup and removes the leaves to a remote UNH composting site. Clarify this section so that options such as vacuuming and composting are allowed as an alternative to fall street sweeping.

Response to comment 2.3.7.1.d.ii(iii) – EPA agrees that the permit should allow use of alternatives to street sweeping as a cleaning method. The Permit has been modified to require "sweeping and/or cleaning." Vacuuming would be an example of "cleaning."

Changes to permit: The permit text of Part 2.3.7.d.ii has been moved to 2.3.7.d.iii. and has been revised accordingly.

Comment 2.3.7.1.d.ii(iv) from the Town of Derry – Sidewalk sweeping is typically not a task performed by municipal permittees. This task would require dedication of additional resources and purchase of new equipment, and could be a year-round project.

Comment 2.3.7.1.d.ii(v) from Town of Exeter – Currently we only sweep arterial sidewalks with an open broom on a tractor – no pickup capabilities. Sidewalk material is pushed in front of street sweeper for pickup. Sidewalks that are not swept have a grassed median strip between sidewalk and street. These sidewalks are not treated with sand. Do sidewalks with grass strip between them and the street require sweeping? If so, this will require a new piece of equipment at a cost of approx. $40,000, which will have to be programmed. This will not be possible within 6 months of the effective date of the permit.

Response to comment 2.3.7.d.ii(iv) and (v) - EPA agrees that a requirement for sweeping of all sidewalks requires a major increase in effort on the part of permittees that is not justified by the potential benefit as applied to all MS4s as MEP. EPA has therefore removed this requirement. EPA encourages those permittees that have found sidewalk sweeping to be an effective pollutant reduction measure or a measure taken to meet water quality requirements in their systems to continue those activities.

Changes to permit: The permit text of Part 2.3.7.d.ii has been moved to 2.3.7.d.iii. and has been revised accordingly.

Comment 2.3.7.1.d.iii(i) from Town of Exeter – "Ensure that areas used for snow disposal will not result in discharges to waters. Please clarify, note NHDES Fact Sheet WMB-3 Snow Disposal states "Disposed snow should be stored near flowing surface waters, but at least 25' from the high water mark of the surface water."

Response to comment 2.3.7.1.d.iii(i) – This permit provision is intended to ensure that snow disposal does not result in snow being disposed of into waters. Snow disposal into surface waters is not considered a stormwater discharge and is not authorized by this permit. This is consistent with the NHDES establishment of a 25 foot buffer from the high water mark of surface waters. The melting of snow, however, is considered stormwater and is authorized by this permit subject to the same general permit requirements as any other stormwater (i.e., that pollutant discharge be reduced to the maximum extent practicable and not cause or contribute to an exceedance of water quality standards). The state policy on snow disposal establishes appropriate requirements. The permit has been revised to clarify this requirement.

Changes to permit: The permit text of Part 2.3.7.d.ii has been moved to 2.3.7.d.iii. and has been revised accordingly.

Comment 2.3.7.1.d.iii(ii) from CLF et al. - Application of road salts for winter de-icing purposes poses a significant threat to the health and sustainability of freshwater ecosystems throughout the region. As part of its Good Housekeeping" minimum control measures, the draft permit requires permittees to establish procedures for winter road maintenance including the use and storage of salt and sand "and to minimize the use of chloride and other salts, and evaluate

opportunities for use of other materials." Draft Permit § 2.3.7.1(d)(iii). These requirements are lacking in needed detail. The draft permit should be amended to prescribe specific measures to be adopted including but not limited to reduced application rates and the use of speed-calibrated spreaders, consistent with requirements set forth in Section 2. 3 pertaining to MS4s discharging to chlorides-impaired waters. Extending such requirements to all permittees is warranted not only by the significant and growing impacts of chlorides pollution, but also the fact that chlorides impairments may be more widespread than currently documented. It also is worth noting that practices that reduce the volume of road salts can reduce winter-maintenance costs.

Response to comment 2.3.7.1.d.iii(ii) – EPA disagrees that the requirements set forth in this section are lacking in needed detail. EPA believes that the general requirement to minimize chlorides usage is consistent with the maximum extent practicable standard applicable to MS4s in general and with the developing nature of BMPs to reduce or replace the use of road salt. The detailed requirements of Part 2.2 (now located in parts 2.2.1 for TMDL watershed and 2.2.2 for non-TMDL impaired watersheds) are water quality based requirement that go beyond the MEP standard to address identified water quality impairments. EPA does not agree that the possibility that impairments "may be more widespread" is sufficient basis on which to require the use of speed-calibrated spreaders by all MS4 communities. To the extent that basic operational changes such as monitoring pavement temperature and training operators can reduce salt usage, EPA believes that such measures are adequately addressed by the general requirement to minimize salt usage. EPA agrees that in certain cases salt reduction practices can reduce winter-maintenance costs.

Changes to permit: none.

Comment 2.3.7.1.d.iv from UNH – This section requires that all permittee-owned stormwater structures be inspected annually at a minimum. As a resource efficiency measure, consider changing this requirement so that structures are required to be inspected at the same intervals they are required to be cleaned per Section 2.3.7.d.i.

Response to comment 2.3.7.1.d.iv - EPA intended the annual inspection requirement of 2.3.7.1.d.iv to apply to structural stormwater BMPs such as swales, retention/detention basins and other similar structures. This inspection requirement is not intend to apply to catch basins or to non-treatment structures such as drain pipes, manholes, gutters, etc. The Permit has been revised to clarify this requirement.

Changes to permit: The permit text of Part 2.3.7.d.iv has been moved to 2.3.7.d.vii. and has been revised accordingly.

Comment 2.3.7.2(i) from the City of Manchester – The EPA is requiring a SWPPP to be developed for maintenance garages, public works facilities, transfer facilities, and other waste handling facilities if they weren't already covered by the MSGP. Is it the intent of EPA to have the municipality use the same format as the MSGP and will the annual reporting requirements be subject to the same reporting requirements under the MSGP? The EPA needs to clarify these requirements.

Response to comment 2.3.7.2(i) – The requirements for SWPPPs and reporting under this permit are as set forth in Part 2.3.7.2, not in the MSGP. The requirements of this permit differ in some ways from the MSGP. With respect to the SWPPP, EPA notes that the structure of the SWPPP required in this permit generally tracks the requirements of the MSGP. To the extent that permittees have existing SWPPPs under the MSGP, these should be adaptable for use under this permit for properties not subject to the MSGP, so long as permittees review the requirements of this permit to ensure that specific requirements are met. With respect to reporting, this permit requires reporting in the format of the Annual Report, containing the information set forth in part 2.3.7.2.c. The reporting requirements of the MSGP do not apply to this permit and EPA believes that the requirements of the permit are sufficiently clear. The permittee may use a common reporting format for facilities subject to the MSGP and facilities subject to this permit, so long as the reporting format meets the separate requirements of both permits.

Changes to permit: The permit text of Part 2.3.7.2.b.v. has been revised accordingly.

Comment 2.3.7.2(ii) from the NHDOT –NHDOT fails to see the connection between the daily operations at our maintenance garages and a Small Municipal Separated Storm Sewer System. Clearly the stormwater pollution prevention plan (SWPPP) requirements are essentially identical to those found and enforced through the Multi-Sector General Permit. EPA through its own admission in a letter dated February 19, 2003 to the Maine Turnpike Authority does not have jurisdiction to enforce. In addition, Section 1.2.1 of [the draft small MS4 general permit] clearly states

> The term include systems similar to separated storm sewer systems in municipalities such as systems in military bases, large hospitals or prison complexes and highway and other thoroughfares. The term *does not include* storm sewers in very discrete areas, such as *individual buildings* . (Emphasis added)

We contend sections 2.3.7.1.b Buildings and Facilities, 2.3.7.1c Vehicles and Equipment, and 2.3.7.2 Stormwater Pollution Prevention Plans for maintenance garages etc. are not eligible for coverage under the Small MS4 permit.

Response to comment 2.3.7.2(ii) – EPA disagrees with the contention that it does not have jurisdiction over these facilities. NHDOT's system as a whole falls within the definition of "municipal separate storm sewer" at 40 CFR § 122.26(b)(8); *see also id.* §§ 122.26(b)(16)(iii) (including "highways and other thoroughfares"), 122.32(a) (specifically including "State departments of transportation").

EPA therefore has jurisdiction over municipal maintenance garages, as well as other facilities, where they fall within the definition of MS4 and are located within an urbanized area. Presumably NHDOT's maintenance garages and facilities are located on NHDOT property that is connected to NHDOT's roadway system, and they therefore are part of NHDOT's larger storm sewer system. To the extent, however, that NHDOT operates individual buildings located in discrete areas isolated from any NHDOT

roadway or other facility, these may not fit the definition of MS4 and as such would not be covered under this permit. Questions regarding specific facilities may be directed to EPA for guidance.

The MSGP, though containing many similar requirements, applies to specific categories of industrial activity that are not defined to include municipal maintenance garages. This does not impact EPA's jurisdiction over such facilities under its authority to regulate MS4s. EPA notes that the standard for pollution reduction from MS4s is MEP and is different from the standard applicable under the MSGP (BPT/BAT/BCT, see MSGP Part 2.1.2) and that for this reason a number of provisions are modified from, although still similar to, a corresponding MSGP provision. To clarify this, EPA has revised the 2008 draft language to specifically reference the MEP standard and remove references that could imply a different standard.

EPA's February 19, 2003 letter to the Maine Turnpike Authority is consistent with this analysis. In that letter, EPA stated that "storm water discharges from highway maintenance garages do not fall within the definition of storm water associated with industrial activity" under 40 CFR. § 122.26(b)(14). The new Draft Permit does not purport to regulate NHDOT's maintenance garages as "storm water discharge associated with industrial activity" under 40 CFR. § 122.26(b)(14). Rather, the Draft Permit regulates NHDOT's maintenance garages as part of a "small municipal separate storm water sewer system" under 40 CFR. § 122.26(b)(16). This is, in fact, precisely what EPA told the MTA in its February 19, 2003 letter.

EPA also notes that MS4s may seek individual permits instead of coverage under this general permit.

Changes to permit: The permit text of Part 2.3.7.2.b. has been revised accordingly.

Comment 2.3.7.2.a(i) from City of Dover – The inventory and SWPPP development for all city facilities and operations needs two years rather than one to become operational.

Response to comment 2.3.7.2.a(i) – EPA believes production of an inventory of municipal facilities involves merely the organization of information currently in the possession of permittees and that it is reasonable to complete the inventory within one year. However, EPA agrees that the SWPPP requirements applicable to maintenance garages, public works facilities, transfer stations and other waste handling facilities are significantly more complex than previously required and reasonably require additional time to develop. Therefore, EPA has increased the time allowed for development of the SWPPPs to two years.

Changes to permit: The permit text of Part 2.3.7.2.b. has been revised accordingly.

Comment 2.3.7.2.b.iv from CLF et al. - With specific regard to the storage of salt piles, or piles containing road salts, the draft permit requires enclosure or cover in most circumstances, but only encourages enclosing or covering piles "if stormwater runoff from the pile will not be

discharged directly or indirectly to the MS4 or if discharges from the piles are authorized under another NPDES permit." Draft Permit § 2.3.7.2 (b)(iv). In light of the significant problems associated with chlorides, permittees should be required to cover all salt piles. Finally, while the above comments relate to provisions in the "Good Housekeeping section of the permit, it is essential that the permit also address chlorides pollution associated with new development and redevelopment. Specifically, all permittees should be subject to the requirements set forth in Section 2.2.3, which requires the owners of private parking lots and roads, and private road-salt applicators, to satisfy certain requirements. In light of significant and growing concerns regarding chlorides pollution all permittees should be required to adopt and impose similar requirements for new development and re-development that discharges, directly or indirectly, to MS4s. The permit should also require permittees to consider - in assessing and adopting LID regulations - the use of porous pavements as a means of reducing the use of road salts.

Response to comment 2.3.7.2.b.iv – EPA agrees that permittees with discharges to surface waters should also require covering or enclosure of salt piles and has modified the permit language accordingly. Where there is no discharge from a salt storage area to a water of the United States or an MS4, directly, or indirectly, the discharge is not covered under this permit. EPA notes that while it is beyond the authority of this permit to impose permit conditions on areas that do not discharge directly or indirectly to a Water of the United States, chloride remains a significant threat to groundwater and public drinking water supplies. It is for this reason that EPA encourages that permittees properly cover or enclose all salt piles.

The permit requirements related to chlorides pollution associated with new development and redevelopment are discussed in Response to Comment [2.2.3].

Permittees are required to consider the use of porous pavement by Permit Part 2.4.6.7.ii. See Response to Comment 2.3.6.7.

Changes to permit – The permit text of Part 2.3.7.2.b. has been revised accordingly.

PART 3.0 OUTFALL MONITORING PROGRAM

Note: Permit requirements for dry and wet weather screening for IDDE-related parameters, including schedules and milestones, have been relocated to the IDDE section, 2.3.4, to reflect the nature and purpose of such screening. The remainder of the outfall monitoring requirements have been consolidated as part of the reporting and record-keeping provisions of New Draft Permit Part 4.0 (revised from the 2008 draft Part 5.0), and the separate permit part for outfall monitoring is deleted from the New Draft Permit. Comments on the 2008 draft requirements are set forth below; the Responses include a reference to the relocated permit provisions where applicable.

Comment 3.0(i) from Roger Frymire – For all impaired water bodies with discharges from the MS4, two rounds of monitoring each year should be conducted – once each in wet and dry weather. Each impaired segment should be sampled once upstream of all MS4 discharges to the waterbody, and at one site downstream of all discharges. Alternately, sampling may occur at city boundaries

and at ends of impaired segments within the MS4. Samples will be analyzed only for constituents listed as contributing to the impairment.

Response to comment 3.0(i) – EPA recognizes that receiving water monitoring would be a useful addition to the monitoring program in the future, but is not including such additional monitoring in the Permit. For this permit term monitoring is focused specifically on discharges from the permittees' systems. EPA believes that sampling of permittees' discharges, rather than the receiving water, will better inform the Water Quality Response Plan as required by Part 2.2.2 of the Permit and will result in greater environmental benefits for the receiving water. However, EPA may consider receiving water monitoring in future permit reissuances.

Changes to permit: none.

Comment 3.0(ii) from the City of Manchester – In regards to monitoring we currently have a program to monitor our urban ponds that is very extensive and consists of sampling three times during the summer months. Our health department also does monitoring of the ponds and rivers during the summer months. I also do dry weather screening of the ponds and the rivers by kayak. The testing consists of E-coli testing for any inlet that is running including streams. If we get a hit then we do retesting including up into the watershed to try and find the problem. If we find an outfall that we are concerned with during the dry weather screening we test for other parameters to make sure that nothing else is present. We also just completed a watershed restoration plan for Nutt Pond and we will be doing more extensive sampling this summer on the outfalls for parameters that were identified in the plan. We are also going to be looking at other BMPs in the watershed to help with the loadings to the pond.

Response to comment 3.0(ii) – EPA appreciates the detailed description of the City of Manchester's monitoring program, which EPA agrees is extensive, particularly compared with many MS4 programs under the MS4-2003. EPA also understands that the monitoring program required under this Permit contains some significant differences from the program described by the City of Manchester and will require the City to revise or add to its existing program. The program under this Permit will assist the City in identifying illicit discharge sources to its urban ponds and other waters that are not being identified in its current monitoring, and will therefore aid the city in removing other illicit sources and improving water quality.

As described in the Response to comments 2.3.4.6.d(i) and (ii), EPA's experience in working with permittees under the MS4-2003 has shown that dry weather screening for bacteria alone is not in all cases sufficient for identifying illicit discharges. First, bacteria counts may be suppressed by the presence of chlorine in a discharge (generally from potable water sources), which serves as a disinfectant. EPA has found that concurrent sampling for other indicators of sewage, ammonia and surfactants, along with chlorine, can assist in identification of discharges with sewage inputs but low bacteria counts. Second, EPA has found that wet weather flows can show indicators of illicit discharges that are not seen during dry weather. These can include low volume illicit discharges that are caught within the storm sewer system and flow out only when storm events wash out the system, as well as

illicit discharges that activate only in wet weather, such as when sanitary sewer or septic system with wet weather capacity issues are overwhelmed during a storm event.

EPA acknowledges the work done by the City of Manchester with respect to Nutt Pond. Nutt Pond is a listed impaired waterbody and has an approved nutrient TMDL for phosphorus. Therefore, this work could be a useful building block towards meeting the stormwater phosphorus load reductions required by Part 2.2.1.f. and Appendix F to the Draft Permit. EPA notes that any BMPs or activities that are funded by section 319 grants and similar programs should not be relied on for permit compliance, as those funds cannot be used for activities required by a NPDES permit.

Changes to permit: none.

3.1 Monitoring Frequency and Location

Comment 3.1(i) from the City of Dover – Please delete the requirement that all outfalls be sampled. The cost of sampling low priority outfalls twice during dry and wet weather makes neither practical nor economic sense. Let the IDDE prioritization plan guide the community to where sampling needs to be performed. This approach wastes local resources to collect the samples and scarce money to analyze the samples for little benefit in the overall program goal.

Comment 3.1(ii) from the City of Nashua - The new outfall monitoring component of the Draft 2008 Permit requires dry weather and wet weather monitoring of 25 percent of all outfalls each year. Over a three year period under the 2003 permit, 482 outfalls were identified and suspicious outfalls were sampled during dry weather. This led to 12 outfalls that required follow up monitoring. The City is aware of problematic outfalls and monitoring them. The City has completed the screening process already and feels monitoring and testing outfalls with no observed causes for suspicion of illicit discharges are not the best use of City funds. The City does have problematic areas which require culvert replacement and cleaning and would prefer to spend dollars in those known areas of concern rather than monitoring outfalls that present no suspicious physical or visual evidence of illegal discharges.

Response to comments 3.1(i) and (ii) - EPA disagrees that a single screening of all outfalls in dry weather is a waste of resources. EPA recognizes that many communities have chosen to prioritize specific categories and locations of outfalls in their IDDE programs and that this is consistent with currently available guidance. See CWP, *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (2004), http://cfpub1.epa.gov/npdes/stormwater/idde.cfm. EPA agrees with the concept of prioritization in general, but not to the extent that low priority outfalls are never screened. It is EPA's experience that illicit discharges can be an issue in unexpected areas, and that a single dry weather screening in the course of a permit term (indeed, over a period of fifteen years, when credit is given for screenings under the MS4-2003, see Response to comment 3.2.1(i)), is both reasonable and practicable. The Permit does allow for limited exclusion of catchments that are totally undeveloped with no sewers or dwellings, where there is no potential for an illicit discharge. In addition, where the permittee is already aware of problems in particular catchment, the permittee may designate a "Problem Catchment" and

go directly to the investigation, without need for screening. For the remaining catchments, EPA notes that dry weather screening is relatively quick when outfalls are not flowing, and that therefore the burden presented by this requirement depends largely on whether or not there are suspicious flows requiring further investigation.

EPA is also convinced of the value of wet weather monitoring; however, EPA has reconsidered the extent of the requirement for wet weather screening and sampling of outfalls. The requirement to take a single grab sample of wet weather discharges is specifically intended to provide additional screening for types of illicit discharges that may only be obvious in wet weather conditions. This is the reason that the parameters identified for monitoring are the same as those identified for dry weather screening, and are more suited for illicit discharge detection than for general water quality characterization. See also Response to comments 3.3(i) to (iii). In the course of the prior permit term, EPA identified a significant number of instances where outfalls that appeared to be clear based on dry weather screening showed clear evidence of illicit discharges in wet weather. These illicit discharges were determined based on analysis for pharmaceutical products as well as bacteria, ammonia and surfactants, providing a clear demonstration that the source is human sanitary sewage. EPA has determined that potential sources of these illicit discharges include low volume discharges that accumulate in the storm drain system until they wash out during storms; connections that provide relief to the sanitary sewer during high sanitary flows from infiltration and inflow; underdrains that collect discharges from leaking sanitary sewers and wash out during wet weather; connections from septic systems that activate during high water table conditions, etc.

Based on this evidence, EPA has determined that wet weather screening for illicit discharges is an essential component of the IDDE strategy. EPA notes, however, that the types of illicit discharges it has identified that manifest only in wet weather have to this point been limited to areas with aging sanitary sewer infrastructure and/or previously identified issues with wet weather related SSOs, sewer backups, surcharges or septic system failures. EPA recognizes that these types of illicit discharges are not as likely in areas served by adequately functioning septic systems or newer sewer infrastructure, and that there are therefore a large number of permittees for whom a requirement to sample every outfall in wet weather for illicit discharge-related parameters is not necessary given other permit conditions.

EPA has therefore revised the requirement for wet weather monitoring to limit it to categories of outfalls that EPA has determined present a risk of illicit discharges that may not be discovered through a dry weather screening program. The revised language includes the following modifications:

1. Wet weather monitoring is only required in those catchments that have risk factors for wet weather-triggered illicit discharges, referred to in the permit as “System Vulnerability Factors”;
2. Wet weather monitoring is included within the catchment investigation procedure for those catchments with System Vulnerability Factors;
3. The schedule for wet weather monitoring is therefore extended consistent with the schedule milestones for completion of the IDDE protocol, which require 40% of all catchments to be completed within five years of effective date;

4. Where wet weather monitoring produced evidence of potential illicit discharges during catchment investigation, a confirmatory wet weather screening must be completed after permittee has eliminated the identified illicit discharges.

In terms of the permit language, this has been implemented in conjunction with moving the monitoring frequency requirements to the IDDE section of the permit, Part 2.3.4. The provisions of the Permit requiring wet weather screening of 25% of outfalls each year (Parts 3.1. and 3.3) have been eliminated from the Permit. The Permit still requires an initial round of screening during dry weather, compressed to a two year period since the wet weather sampling has been removed. Part 2.3.4.9.a. Wet weather sampling is required only in those catchments where one or more System Vulnerability Factors have been identified that raise the potential of wet weather-triggered illicit discharges and shall be completed as part of the catchment investigation procedure. Those requirements are set forth in Parts 2.3.4.8.f. Where either dry or wet weather screening indicated evidence of illicit discharges, the permittee has one year from completion of illicit discharge investigation and removal to conduct a confirmatory screening (dry and/or wet weather, depending on the original screening that produced that evidence) under that Part.

The revised Draft Permit also requires permittees to establish an ongoing schedule for follow-up screening of outfalls at intervals not to exceed five years. This will include wet weather sampling only where previous investigations have found evidence of wet weather illicit discharges. Part 2.3.4.8.g.

EPA believes that the revised requirements represent an appropriate balancing of relevant factors mentioned by commenters and reflect the MEP standard for screening and monitoring for illicit discharges. EPA recognizes that many permittees have established other aspects of their stormwater management program as higher priorities than a broad IDDE program, such as the culvert replacement and cleaning referenced in the City of Nashua's comment. However EPA has determined based on extensive experience in MS4 programs that an extensive IDDE program, going beyond the targeted areas that have typically been a focus, is to be a priority under this reissued permit. As permittees submit data regarding the findings of their IDDE program, EPA will continue to evaluate and assess the appropriate level of IDDE effort, including monitoring requirements, and will consider such information in the next permit reissuance.

Changes to permit: 2008 draft Parts 3.1. and 3.3. have been eliminated. Monitoring frequency requirements have been moved to Part 2.3.4.8 and 2.3.4.9, as set forth in Response to Comments 2.3.4.6 and 2.3.4.6.d(xi).

Comment 3.1(iii) from the Town of Londonderry – The required monitoring of the outfalls will be very costly.

Comment 3.1(iv) from Town of Goffstown – The requirements for monitoring 25 percent of our outfalls each year on top of dealing with any problem areas, will be very costly for MS4's, especially in the current economy when tax dollars are being severely stretched and towns need to prioritize their public safety needs. One thing that USEPA should consider would be an amendment

to the "Beaches Environmental Assessment and Coastal Health Act of 2000" to expand the grant provisions for coastal sampling to all storm water sampling.

Comment 3.1(v) from UNH - Section 3.0 Outfall Monitoring Program and the associated analytical monitoring represent a major new expense for permittees. The requirement for wet weather analytical monitoring can be especially difficult, possibly requiring extensive overtime for night and/or weekend monitoring activities. Consider delaying this requirement until the current economic climate improves, or reducing the annual percentage of outfalls monitored from 25 to 15 percent.

Comment 3.1(vi) from Steve Miller - The proposed monitoring program needs to find ways to cut cost to municipalities while being efficient and effective, but let's make sure any money that is required to be spent here results in improvements in stormwater management. In my view the bottom line is we very much need new and stronger regulations but they must be effective with built in efficiencies.

> **Response to comments 3.1(iii) to (vi)** – EPA recognizes that there are significant costs associated with the monitoring requirements under the 2008 draft and has made several revisions to reduce these costs, while still achieving the objectives of the monitoring program.
>
> First, as discussed in the response to comments 3.1(i) and (ii), EPA has reduced the scope of wet weather monitoring to limit the types of catchments for which such monitoring is required, provide more time for the initiation of such sampling and provide for extended schedules for permittees with large number of outfalls requiring such monitoring.
>
> Second, as discussed in the response to comments 2.3.4.6.d(i) and (ii), EPA has revised the permit to encourage the use of field test kits for all monitoring parameters other than bacteria. This change will substantially reduce the analytical costs for the required sampling, even after accounting for additional staff time required to perform the field analysis.
>
> EPA has determined that the changes have the potential to reduce monitoring costs by 50% or more. See Responses to comments II.B.1 to 8. The revisions to the Permit provide for an efficient and effective monitoring program that will satisfy the need for data in support of the IDDE.
>
> With respect to the Town of Goffstown's suggestion regarding funding, EPA does not expect amendments to the "Beaches Environmental Assessment and Coastal Health Act of 2000" that would provide additional funding for monitoring required under this Draft Permit.
>
> *Changes to permit: See Responses to comment 3.1(i) and (ii) and 3.2.1(i).*

Comment 3.1(ix) from Town of Exeter – If outfalls are not accessible, can we complete our water quality monitoring at the last structure before discharge?

Response to comment 3.1(ix) – Yes. EPA has revised the permit language to provide for monitoring at the first accessible upstream manhole or structure if the outfall is inaccessible.

Changes to permit: Permit Part 2.3.4.8.d.ii was added.

Comment 3.1(x) from Town of Derry - It is unclear in this section whether the monitoring program must include all non permittee-owned outfalls located on private property or just permittee-owned outfalls as is specified for other requirements elsewhere in the draft permit.

Response to comment 3.1(x) – The permit requirements apply only to outfalls and interconnections that are part of the MS4. Private outfalls located on private property are not subject to monitoring requirements.

Changes to permit: none.

Comment 3.1(xi) from Town of Somersworth - In the Outfall Monitoring Program we are required to "monitor for the pollutants identified as the cause of the impairment". The Salmon Falls River runs on the east side of the City of Somersworth and is impaired by mercury. The EPA recognizes that this is an air borne pollutant so why are we being required to test for a contaminant that we know is not a result of local action? We recommend that the requirement to test for mercury be struck from the permit. The generation of mercury and contamination of water bodies a distance from the source has been a topic of discussion for many years. The last I knew it involved the regulation of interstate commerce which is a federal role. Therefore it should stay a federal role and the only communities that should be required to test for it are those with known sources within their areas.

Response to comment 3.1(xi) – EPA agrees that the requirement for monitoring for pollutants identified as the cause of water quality impairments should not include requirements for monitoring pollutants that have been identified as resulting from atmospheric deposition, such as mercury. To clarify the required monitoring parameters a new Appendix G has been added setting forth the monitoring requirements for identified impairments; no mercury monitoring is required pursuant to Appendix G.

Changes to permit: New Appendix G has been added, and Parts 3.2.3 and 3.3.4 have been replaced with a new Part 4.3.1.ii.

Comment 3.1.2(i) from the City of Portsmouth – Section 3.1.2 should be modified to acknowledge that the dry weather analytical monitoring is only required for flowing outfalls, and that if a permittee conducted dry weather screening during the 2003 – 2008 permit cycle and determined the illicit discharge potential was low or medium, further screening is not required. The City's cost to complete the dry weather screening as currently presented in the Draft General Permit would be approximately $13,000 per year.

Response to comment 3.1.2(i) - EPA believes that the Permit is sufficiently clear that sampling and analytical monitoring is only required for flowing outfalls. Part 3.2.1 provides

that "When a flow is observed at an outfall, a sample of the flow shall be collected and analyzed." This language is relocated to Part 2.3.4.8.d.iii.

EPA agrees that an outfall screening that meets the requirements of Part 2.3.4.8, that was completed during the MS4-2003 permit cycle, can be used to meet the requirements of this Part. In order to achieve the benefit of this Part, however, the screening must have met all the requirements of part 2.3.4.8. Outfalls that were flowing in dry weather that were not sampled for all the parameters required in that part must receive further screening to meet all requirements.

Based on information from various sources, EPA expects that the revised sampling requirements will be more affordable to the permittees. For example, EPA has reviewed the City of Portsmouth cost estimates and believes that the use of field test kits for parameters other than bacteria, and the elimination of requirements to monitor pH, potassium and turbidity, will substantially reduce the costs of dry weather screening. The City's estimate of $13,000 per year includes a cost of $8,012 for "outside services." These presumably are for analytical costs, as they are separate from and in addition to staff costs estimated at one additional hour ($40) for each flowing outfall. This amounts to an estimated analytical cost of $713 per flowing outfall. Use of field kits and the revised parameter listing are expected to bring the cost of analysis and supplies to approximately $70 for the standard set of parameters. Even assuming an average of two additional analyses for discharges to impaired waters, the analytical cost would be approximately $150, and the total cost would be reduced by approximately 45%. For a more detailed discussion of the City of Portsmouth's cost estimate, see Response to comment II.B.8.

Changes to permit: See changes at Response to Comment 2.3.4.6.d.

3.2 Dry Weather Screening and Analytical Monitoring

Comment 3.2(i) from Town of Derry – Requiring analytical testing of every flow is unnecessary and expensive, particularly since further investigation and sampling of the source of the flow overlaps and is thus required under the IDDE program. The draft permit does not allow flexibility for field screening techniques that could triage the investigation by allowing such field measurements for pH, temperature, conductivity, TSS, or DO.

This permittee understands that dry weather flow can be suspicious. However, it would be more efficient and cost-effective to allow permittees to conduct a triage approach involving field measurements and/or tracking the source of the discharge before requiring analytical testing. A simple investigation may find a benign source (garden hose runoff with kids playing in a sprinkler) for which expensive analytical testing is really not required. Alternatively, if the source could be an illicit discharge, then a decision to conduct analytical testing could be made at that time.

Comment 3.2(ii) from Roger Frymire - Bacteria sampling is the single most expensive parameter in the monitoring requirements - both because of laboratory expense, and the short sample holding time - restricting sampling trip timing and duration. Even though bacterial data is very useful, any way to reduce this requirement could significantly reduce the burden of monitoring programs.

While I would like to see wet-weather bacterial sampling at all outfalls, enough other sewage indicators are being required in the dry-weather screening that it might be significantly more cost-effective to skip dry weather bacterial sampling on the first visit. Then if Odor, low DO, Surfactants, Ammonia, Potassium, Outfall size, or Visual indications (or some metric of all these) point to possible problems, a repeat trip to sample JUST for bacteria could be made to many such outfalls in a single trip (and short holding time). Some outfalls might not need the expense of bacterial testing at all, and condensing the remainder into the smallest possible number of laboratory trips should also help reduce the total expense of this testing.

Response to comments 3.2(i) and (ii) – EPA recognizes that analytical testing is expensive and has reduced it to a level that continues to meet the program's objectives. It has done so by reducing the number of parameters and allowing use of field kits for as many parameters as possible. EPA also recognizes that bacteria sampling, which cannot be done through field kits, brings challenges not just in analytical cost but also requirements to meet hold times. However, it has been EPA's experience that bacteria sampling is essential to assessing whether an illicit discharge may be responsible for a dry weather flow, and that the other indicators are not sufficient to rule out the need for bacteria sampling. Furthermore, EPA has concluded that sampling for bacteria and other parameters is most effective when done concurrently, and therefore the permit does not allow a repeat trip to sample just for bacteria.

EPA believes that there are very limited occasions when a simple investigation as described by the Town of Derry will reveal a benign source such as a garden hose. On the other hand, it is quite common for illicit discharges to be intermittent in nature, and difficult to track for that reason. A "triage" approach as described would therefore run a high risk of missing the opportunity to sample an intermittent flow to determine if it may be an illicit discharge. EPA thus believes that a triage approach will not meet the goals of an IDDE program and is not appropriate to meet the objectives of the Permit.

Changes to permit: none.

Comment 3.2(iii) from Roger Frymire - Chlorine tests should only be required in dry weather and only at outfalls with an odor of bleach or swimming pools. Simple field tests by paper strips are available, but the human nose is at least equally sensitive, so testing time and expense should only be required if the screening 'sniff test' indicates chlorine. If instead the intention was to require testing for Chlor**ide**, this can best be accomplished by multimeter testing of Conductivity - which is easily converted to ppt salinity.

Response to comment 3.2(iii) – The intent of monitoring for chlorine is to identify those outfalls where bacteria inputs to the system are being masked by the presence of residual chlorine in the system acting as a disinfectant. EPA has found that flows with high levels of ammonia, surfactants and bacteria are highly likely to include illicit discharges, but also that outfalls with high ammonia and surfactants, low bacteria and detectable chlorine concentrations are also likely to be illicit discharges. Field test kits may be used for this requirement; EPA does not accept a 'sniff' test for this purpose due to the varying sensitivity of individual senses of smell and the subjective nature of such a measure.

The Permit does not require testing for chloride unless it is the pollutant identified as the cause of a water quality impairment in the receiving water. EPA agrees that chloride concentrations can be derived from conductivity monitoring.

Changes to permit: none.

3.3 Wet Weather Analytical Monitoring

Comment 3.3(i) from CEI – The monitoring program outlined under Part 3.3 will require significant resources and may not result in representative or comparable data. If wet weather data is collected for different storm events and during varying conditions (e.g., first flush, end of storm, time of year) it will not adequately characterize water quality impacts. Under these varying conditions, numerous data points would be required to evaluate problem areas and prioritize improvements. In order to obtain representative and comparable data, a wet weather monitoring program should be developed for each MS4. The program should follow a design similar to that of a Quality Assurance Project Plan (QAPP) and focus on key sampling locations to characterize stormwater quality throughout Town.

For example, using land use pollutant load calculations and characteristics for each sub-basin, a range of outfalls could be targeted to represent low, medium and high-density development areas. This will focus the wet weather monitoring and allow for additional data points to be collected during multiple storm events. Similar to the evaluation for "substantially identical outfalls" in the NPDES Multi-Sector General Permit, the data could be used to characterize wet weather quality at other outfalls in Town. A program of this nature would reduce the overall financial burden of wet weather sampling at each outfall while collecting representative and comparable data to evaluate stormwater impacts, priority improvement areas, etc.

Comment 3.3(ii) from Town of Derry – Conducting wet weather monitoring may provide some useful data in evaluating overall stormwater quality, however the results would be limited and provide only a completely random single snapshot in time, for which the presence of pollutants will not be known until well after a storm event. Tracking the pollutants to their source could be very extensive in both time (having to collect samples during several subsequent storm events) and costly (analytical samples from numerous manholes, catch basins, or other sources entering the MS4). The logistics of performing these tracking activities is unnecessarily intensive given that there is no guarantee that the pollutants will be detected each time, particularly if it was the results of an intermittent discharge. In addition, the presence of some pollutants (e.coli or phosphorus, low pH) may be the results of wildlife (e.coli or phosphorus) or naturally occurring sources (low pH of rainfall). The permit should allow flexibility to allow permittees to adopt a triage approach to investigating source of pollutants in stormwater. Permittees should be allowed to use direct knowledge and professional judgment in determining the need.

Comment 3.3(iii) from City of Portsmouth – The utility of this data will be limited because it will likely be collected during a variety of non-comparable storm events.

Response to Comments 3.3(i) to (iii) – EPA agrees that the wet weather monitoring requirement, consisting of individual grab samples at each outfall, may provide limited

useful data on general stormwater quality for the reasons stated in the comments. The intent of the wet weather sampling in the Permit is to identify outfalls where there may be illicit discharges that are triggered by wet weather, such as connections that provide relief to the sanitary sewer during high sanitary flows from I/I; underdrains that collect discharges from leaking sanitary sewers and wash out during wet weather; connections from septic systems that activate during high water table conditions, etc. EPA has found that wet weather sampling can be used to identify such discharges using the same set of parameters applied for dry weather flows. EPA has revised the wet weather monitoring requirements as set forth in the Response to comments 3.1(i) and (ii).

Changes to permit: See Response to comments 3.1(i) and (ii).

Comment 3.3(iv) from City of Portsmouth – In addition, this is a burdensome requirement. Wet weather sampling will require crews of two people to minimize the dangers of conducting sampling near water bodies during storm conditions. In addition, the hold times required for the e-coli and enterococcus samples are 24-hours. In order to transport the sample to the lab and allow laboratories time to conduct the analyses within the required hold time, the City would need to limit sample collection to 10-20 samples per storm event. To achieve the sampling requirement of 25% of the City's outfalls each year, 5 to 10 storm events would need to be sampled. The City of Portsmouth estimates it will cost $98,000 per year to conduct wet weather monitoring. We believe this requirement should be removed from the General Permit altogether. At most a range of storm sizes should be specific, and a set of representative outfalls should be sampled only when an event can be sampled during regular business hours.

Response to Comment 3.3(iv) – EPA agrees that the logistics of sampling every outfall over a limited time period during wet weather could be challenging for permittees with a large number of outfalls. EPA has changed the monitoring requirements to address these and related concerns. See Response to comments 3.1(i) and (ii). With respect to the need for bacteria sampling, see Response to comments 3.2(i) and (ii). With respect to cost estimates, see Response to comment II.B.8.

Changes to permit: See Response to comments 3.1(i) and (ii).

Comment 3.3(v) from Roger Frymire - While all outfalls need to be GPS located and screened for dry-weather flow, some towns have hundreds of outfalls connected to just one or two catch-basins by a short run of pipe. Country roads can run for miles adjacent to a stream or river, with twenty or more of these tiny drainage systems per mile - almost all bone dry until it rains. Requiring wet-weather sampling of all such outfalls seems an inordinate burden - especially on the less populated towns with more road miles per taxpayer. I suggest removing the wet-weather monitoring requirement for a reasonable majority of such tiny drainage systems. With such a large number of these, at least a few will have dry-weather flow from groundwater and other sources. These few should provide plenty of data for characterizing the majority. A possible cutoff point could be "Four or fewer catch basins draining under an acre of impervious area connected to a single outfall under 24" diameter - with no dry weather flow or other indication from screening of additional inputs or problems.

Response to Comment 3.3(v) – EPA agrees that the wet weather monitoring requirement as set forth in the 2008 draft could have been difficult for less urban communities with very distributed drainage systems (i.e. a large number of outfalls, where most serve very small catchments). However, EPA also notes that small urban catchments along water bodies may also contain aging sanitary sewer infrastructure, industrial land uses, and other risk factors for illicit discharges so that size is not the most appropriate basis for a cutoff.

To better target those catchments that are more likely to present wet weather issues, EPA has therefore reduced the wet weather monitoring requirement to apply only to those catchments that present "system vulnerability factors" for illicit discharges that may be triggered or visible in wet weather. These include:

- History of SSOs, including those resulting from wet weather, high water table, or fat/oil/grease blockages;
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs;
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;
- Common or twin-invert manholes serving storm and sanitary sewer alignments;
- Common trench construction serving both storm and sanitary sewer alignments;
- Crossings of storm and sanitary sewer alignments;
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, multiple roof leaders, catch basins, or other significant sources of inflow, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.
- Areas formerly served by combined sewer services;
- Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas;
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance); and
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance.

EPA's intent is to exclude from wet weather monitoring the type of 'country road' outfalls described in the comment, as well as other catchments with low risk of illicit discharges manifesting in wet weather. These would include more recently developed areas with new sanitary sewer infrastructure or areas with septic systems with no history of failures.

Changes to permit: See Response to comment 2.3.4.6

Comment 3.3(vi) from Roger Frymire - pH should be dropped from the list of parameters monitored, especially in wet weather when any pH excursions will be buffered by rainwater flows. The few instances of pollution causing pH problems should be easily found by other indicators and especially visual inspection. Even in dry weather, the time-consuming calibration of pH meters will make the time spent noticeably less productive. Also, glass bulbs of pH probes are notoriously prone to breakage and replacement expense. This is simply a large time-sink and expense for basically NO useful data.

Response to Comment 3.3(vi) – EPA agrees with the comment and has removed pH from the list of parameters monitored.

Changes to permit: See Response to comment 2.3.4.6.d(i) and (ii).

Comment 3.3(vii) from Roger Frymire - DO should be monitored along with temperature and conductivity by a field multimeter. Second only to actual bacterial tests, I have found this the most useful parameter in identifying problem outfalls. Besides sewage, low Dissolved Oxygen can be caused by excessive organic material such as leaf litter in catch basins, and may be used to help indicate success of street-cleaning and catch basin maintenance BMPs.

Response to Comment 3.3(vii) – EPA has not generally found that DO monitoring provides a significant benefit to illicit discharge detection. This experience is consistent with the recommendations of the Center for Watershed Protection in their IDDE Manual, where DO is not listed as an indicator parameter. CWP, *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments*, p. 121 (2004). In addition, while many (but not all) field meters include DO, the DO meter requires more calibration effort than other multimeter components, and may be difficult for municipal staff to maintain. Therefore EPA is not requiring DO monitoring in this Permit, although EPA encourages permittees to incorporate such monitoring if they find it useful.

Changes to permit: none.

Comment 3.3.2(i) from Roger Frymire – I would suggest that the permit be amended to require that permittees place all monitoring data collected into EPA's WQX database – possibly on a yearly basis. This database is being used by a growing number of states and watershed groups as a permanent repository for water quality data. Further, I suggest that EPANE commit to generating a common spreadsheet for use by all MS4 permittees for initial local storage of required monitoring data. This should allow smooth transfer of all MS4 data into WQX in simple batch operations. I cannot overstate the usefulness of having all this monitoring data available for query in a single online database along with historical and watershed data.

Response to Comment 3.3.2(i) - The Water Quality Exchange, or WQX, is a framework that allows States, Tribes, and others to submit and share water quality monitoring data with EPA over the Internet. Once submitted using the WQX framework, the data is stored in the publicly-accessible STORET Data Warehouse. The STORET Data Warehouse is EPA's repository of the water quality monitoring data collected by water resource management groups across the country. These organizations, including states, tribes, watershed groups,

other federal agencies, volunteer groups and universities, submit data to the STORET Warehouse, using the WQX framework, in order to make their data publically accessible. Data can then be re-used for analysis. For more information on STORET and WQX, see EPA's website at http://www.epa.gov/storet/about.html.

EPA supports the use of WQX and the STORET Data Warehouse as a central repository for ambient water quality monitoring data, and recognizes the usefulness of having as much monitoring data as possible in a single database that is publicly accessible. EPA also, however, recognizes the administrative burden to permittees associated with the permit's reporting requirements. EPA believes it is not essential to the MS4 program goals to require permittees to submit monitoring data in two formats - both in an annual report to EPA and in a separate submission to WQX. The latter would require setting up access to WQX, formatting their monitoring data to meet the specific requirements for consistency with the WQX data framework, and converting their data to XML format for submission to WQX. See *Submitting Data to EPA Using WQX* at http://www.epa.gov/storet/wqx/wqx.html. Therefore EPA has not amended the permit to require permittees to directly submit their monitoring data to WQX in this permit reissuance.

EPA agrees that a common format for recording and storing monitoring data will be of value for analyzing the data and for any future use of MS4 data with STORET and WQX. EPA therefore has developed an Excel spreadsheet template for monitoring data that is suggested for use in connection with the permit's annual reporting requirement and is encouraging permittees to submit this data in a spreadsheet format. The monitoring data template and other annual reporting templates will be posted on EPA's website. In developing the Excel template EPA has attempted to remain consistent with the Excel spreadsheet developed for WQX submittal in order to facilitate future use of the monitoring data with STORET data. (See WQX Web Template at http://www.epa.gov/storet/wqx/wqxweb_downloads.html).

Changes to permit: none.

Part 4.0/New Draft Part 3.0 REQUIREMENTS FOR MS4S IN NEW HAMPSHIRE

Note: Due to the consolidation of the 2008 Draft's Monitoring Section as part of the IDDE and Reporting Sections, Parts 4.0 through 7.0 of the 2008 draft have been renumbered as Part 3.0 through 6.0. Comments are still identified with the 2008 draft numbering in the discussion below.

Comment 4.1 from Town of Derry – It is stated that NHDES may necessitate additional water quality certification requirements to protect water quality and to meet additional conditions in order to obtain or continue coverage under this permit. This is a very broad statement without any apparent listed conditions that would direct NHDES to implement the additional conditions in order to be covered under the federal permit. This raises concerns of duplication of regulation over permittees, particularly since NHDES declined to become a delegated authority for the MS4 program. It would be useful for permittees to be informed within the bounds of the permit as to

what authority NHDES has to determine permittees eligibility under the permit, and under what conditions or circumstances NHDES would necessitate additional requirements to meet eligibility.

Response to comment 4.1 – NHDES' certification authority is derived from section 401 of the Clean Water Act, which requires any applicant for a federal NPDES permit to obtain certification from the State that the discharge "will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of this Act." See also 40 CFR § 124.53(e)(1). The permit language allowing NHDES to add additional conditions "necessary to protect water quality" is consistent with this statutory authority. (The comment misstates the provision as allowing "requirements to protect water quality and to meet additional conditions"; this is inaccurate, as the permit states that additional conditions may be imposed only where "necessary to protect water quality".) This duplication of regulation is inherent in the Section 401 Water Quality Certification component of the Clean Water Act and applies to all NPDES and other Clean Water Act (e.g. Army Corps of Engineers) discharge permits.

The authority of NHDES to determine permittees' eligibility is accurately described in Section 4.1.2 of the 2008 draft (Section 3.1.2 of the New Draft Permit), which states "if NHDES determines that additional water quality certification requirements are necessary to protect water quality, it may require individual applicants to meet additional conditions to obtain or continue coverage under this permit." NHDES has not identified more specifically under what conditions or circumstances it would necessitate such additional requirements.

Changes to permit: none.

Part 5.0/New Draft Part 4.0 PROGRAM EVALUATION, RECORD KEEPING, MONITORING AND REPORTING

Note: Due to the consolidation of the 2008 Draft's Monitoring Section as part of the IDDE and Reporting Sections, Parts 4.0 through 7.0 of the 2008 draft have been renumbered as Part 3.0 through 6.0. Comments are still identified with the 2008 draft numbering in the discussion below.

Comment 5.0(i) from Town of Derry - There is confusion in the evaluation and reporting requirements relative to definition of BMP in Appendix A and when "permission" is required from EPA to change or modify a BMP. By definition in Appendix A, it could include any structure or fixture, or a practice or operating procedure. Alternatively it could refer to a BMP as described in the NOI. This should be clarified. To what specific degree must permission from EPA be sought?

Response to comment 5.0(i) – The requirement for approval to change or modify a BMP is limited to BMPs that are "specifically identified in the SWMP" in Part 5.1.2 (New Draft Permit Part 4.1.2). BMPs that are not "specifically identified in the SWMP" are not subject to this approval requirement. EPA believes the permit language is sufficiently clear.

Changes to permit: none.

Comment 5.0(ii) from City of Portsmouth – The Permit, as drafted, would create a significant administrative burden for the City that would *detract* from its ability to provide direct benefits through such activities as increased street sweeping, increased catch basin cleaning, removal of illicit discharges, and/or conducting inspections of construction sites. The City has estimated that approximately 2,000 staff hours would be required to comply with the administrative components of the draft Permit such as tracking and annual reporting. The total estimated cost to comply with this Permit, an addition $2,100,000 over the five year permit cycle, would constitute a 6-7% increase in the City's current Public Works budget. Due to the current national economic crisis, the Portsmouth City Council has mandated a zero increase in all City budgets, therefore other essential programs would need to be reduced or cut to accommodate these expenditures.

Comment 5.0(iii) from the City of Dover - In general I believe the permit proposal is too aggressive and unrealistic in what it expects permit holders to accomplish. The administrative burden alone is substantial and should be significantly reduced, as it does little to advance the cause.

Comment 5.0(iv) from the Seacoast Stormwater Coalition of New Hampshire - In closing, it is obvious that the Draft Permit will require significantly more Federal resources for the EPA to effectively administer than was required by the previous permit. The additional reporting required by municipalities and institutions to be submitted to the EPA represents extremely costly services on both the part of the EPA and the regulated community. This raises serious questions about how carefully the EPA considered the internal implications of these additional efforts and to what degree is it expected to produce positive external results, and at what cost?

Response to comments 5.0(ii) to (iv) – The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a), 33 U.S.C. § 1251(a); *see also id.* §§ 1251(a)(1) ("national goal that the discharge of pollutants into the navigable waters be eliminated by 1985"), (a)(2) ("national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983"). While Congress did exempt small MS4s' stormwater discharges from the obligation to obtain NPDES permit authorization until 1994, *see* CWA § 402(p)(1), 33 U.S.C. § 1342(p)(1), Congress also recognized the environmental threat posed by storm water runoff, *see NRDC v. EPA*, 966 F.2d 1292, 1296 (9th Cir. 1992), and consequently that moratorium was temporary. Small MS4s are now subject to requirements that are similar to those of other entities that discharge pollutants into the waters of the United States.

EPA recognizes that there is administrative burden associated with NPDES permitting. This is the case not only with respect to the Small MS4 General Permit, but to all NPDES permitting. The NPDES permitting program relies on a self-monitoring, self-reporting compliance model that necessarily imposes significant administrative burdens upon permittees as well as the regulatory agency. With respect to non-stormwater NPDES permits, for example, where reporting is done via monthly discharge monitoring reports, estimates of the required administrative burden range from 120 hours/year for minor dischargers to 1,320 hours/year for major dischargers. See *NPDES Discharger Monitoring Report* (Paperwork Reduction Act Notice). Administrative burdens of this order of magnitude would not be unexpected for stormwater dischargers, which in most cases

represent even more complex systems, with a greater number of outfalls and a larger number of receiving waters than traditional permittees (although reporting via discharge monitoring reports is not required under the MS4 permit).

In terms of the overall effectiveness of the program, the self-reporting model has been determined to be an effective and efficient model for environmental regulation and is in use in numerous federal and state environmental programs. See, e.g., Innes, R., "Remediation and self-reporting in optimal law enforcement", *Journal of Public Economics*, vol. 72, 379-93 (June 1999).

EPA has sought to reduce the administrative work required by this Permit where doing so would not compromise the program. In reviewing the reporting requirements of the 2008 draft, EPA noted that in some areas the reporting requirements were duplicative or confusing in terms of whether activities were to be reported in the SWMP, the annual report or both. EPA also noted provisions where the level of detail of the reporting requirements may be excessive. EPA has therefore revised the Permit to clarify and simplify such requirements. EPA has also developed a template for the NOI and annual report in order to assist permittees in meeting the reporting requirements. In addition, if permittees choose to use the electronic .pdf NOI with this permit and submits the form electronically to EPA the submitted data will then be used to pre-populate the first annual report which will be provided back to the permittee in order to reduce the redundancy in information gathering. The annual report electronic .pdf template will be available on EPA's website.

Finally, any eligible MS4 may elect to seek an individual NPDES permit, in lieu of seeking coverage under this general permit. See Part 1.8.

Changes to permit: See responses related to comments on particular permit provisions.

Comment 5.3 from UNH – Section 5.3 describes the reporting period from July 1 to June 30, with the annual report due date August 1. Please clarify how the reporting period relates to the effective date of the permit and the, official permit years referenced in the permit requirements. Also clarify how the new permit Year One reporting date wi1l relate to the existing 2003 MS4 permit "leftover" reporting date.

Response to comment 5.3 – The revised Permit incorporates a reporting period that corresponds to the permit effective date. EPA agrees that references to the "permit years" were somewhat confusing in the 2008 draft and has attempted to eliminate them, at least in connection with establishing permit deadlines. For reporting purposes the concepts of Year One Annual Report, etc. has been a useful one under the MS4-2003, so that terminology will still be used.

Changes to permit: See response to comment 2.3.4.6-2.3.4.6.d.(ii) and permit Part 4.3.1 has been revised accordingly.

Part 6.0/New Draft Part 5.0 REQUIREMENTS FOR STATE OR TRIBAL MS4S NON-TRADITIONALS

Note: Due to the consolidation of the 2008 Draft's Monitoring Section as part of the IDDE and Reporting Sections, Parts 4.0 through 7.0 of the 2008 draft have been renumbered as Part 3.0 through 6.0. Comments are still identified with the 2008 draft numbering in the discussion below.

Comment 6.0(i) from Town of Derry – There are statewide issues associated with all permittees that include significant overlap between municipal MS4s and the state and transportation MS4s, specifically impairments due to chloride and pending TMDLs. The most recent 303d report by NHDES indicates that there are many more impairments due to chloride throughout NH than the 4 watersheds identified along I-93 in southern NH [in] which draft TMDLs are being prepared. It would be prudent that the regulatory agencies be involved in a state-wide public outreach effort instead of the permit's current approach to only require outreach and chloride reduction efforts in select MS4s.

> **Response to comment 6.0(i)** – The permit requires outreach and chloride reduction efforts in MS4s because this is a permit that applies to MS4s. These requirements apply to MS4s discharging to listed chloride-impaired waters without TMDLs as well as those with approved TMDLs, and includes state MS4s discharging to such waters. Additional state-wide public outreach efforts are in fact occurring, although this permit does not regulate such efforts.
>
> *Changes to permit: none.*

Comment 6.0(ii) from Town of Derry - EPA states that the non-traditional MS4s (state, tribal, and transportation) may rely on EPA and State environmental agency for enforcement assistance. What enforcement support can municipal MS4s expect from these same agencies and are they willing to commit to providing this support when needed?

> **Response to comment 6.0(ii)** – This permit provision is intended to acknowledge that non-traditional MS4s in some cases do not have enforcement authority, and therefore are unable to enforce requirements placed on third parties that discharge to their systems. That is not the case for traditional MS4s, which generally have sufficient regulatory authority to enforce the requirements of Parts 2.3.3.6, 2.3.5.3 and 2.3.6.3.
>
> Traditional permittees are required under this permit to exercise their enforcement authority diligently. In most cases this will be sufficient to resolve compliance issues. However, where diligent enforcement efforts by MS4 operators have failed to resolve violations by private parties that discharge to the MS4, EPA has provided assistance to permittees under the MS4-2003 and expects to do so under the reissued permit as well. Particularly with respect to illicit discharges, illegal non-stormwater discharges that reach waters of the United States through MS4 systems are themselves violations of the Clean Water Act and are subject to federal enforcement under Clean Water Act sections 309 and 505. With respect to construction projects federal enforcement is available under the Construction General Permit for problems that cannot be resolved at the local level, as discussed in the response to comment 2.3.5.3.e(i). NHDES as well may provide assistance where private

violations cannot be resolved at the local level despite diligent enforcement efforts by permittees.

Changes to permit: none.

Part 7.0/New Draft Part 6.0 REQUIREMENTS FOR STATE TRANSPORTATION AGENCIES

Note: Due to the consolidation of the 2008 Draft's Monitoring Section as part of the IDDE and Reporting Sections, Parts 4.0 through 7.0 of the 2008 draft have been renumbered as Part 3.0 through 6.0. Comments are still identified with the 2008 draft numbering in the discussion below.

Comment 6/7(i) from the City of Manchester - Manchester has noted that the requirements for state/tribal MS4 non-traditionals and transportation agencies are only a fraction of what is expected of cities and towns. These entities should be subject to the same level of compliance as local government. With the miles of road the NH DOT has to maintain, the hundreds of miles of waterways with outfall discharges, it would be monumental and prohibitively expensive for them to fulfill the requirements as outline in sections 1.0 through 5.0. Please consider that the communities are no more fiscally sound that the State or Tribal entities.

Response to comment 6/7(i) - EPA disagrees that the requirements for MS4 non-traditionals and transportation agencies are only a fraction of what is expected of cities and towns. Both Part 6.0 and 7.0 state that all the requirements and conditions of parts 1 to 5 of the permit apply to such permittees, with three exceptions: (1) modified public education requirements; (2) allowing for "policies and procedures" in lieu of ordinances and regulatory mechanisms for those permittees without regulatory authority; and (3) requiring evaluation of opportunities to use green infrastructure and reduce impervious cover, in lieu of the requirements of 2.3.6.7 and 2.3.6.8. The three exceptions do not provide substantially lower level of effort, but simply recognize the inherent difference between traditional and non-traditional MS4s, particularly with respect to regulatory authority.

With respect to the cost of compliance for traditional MS4s, see response to comments II.B.1-8. With respect to the characterization of the cost of compliance to NHDOT, that issue is addressed in the response to comment 7.0(ii).

Changes to permit: none.

Comment 7.0(i) from NHDOT - Managing the highway system in New Hampshire is a team effort involving many State and Local agencies including the Departments of: Safety, Environmental Services and others. It is difficult to understand how the NH Department of Transportation became the lead agency in this "Municipal" Permit. We are not a town, city or village. Nobody physically lives in a house or operates a business on the State Right-of-Way. We are designers and maintainers, not regulators, policemen or investigators. Those powers reside elsewhere in state and local government. The Department of Transportation only controls the physical makeup of the road (pavement, guardrail, drainage etc.) Our system is also vast. The Department maintains 627 miles of

highways, has over 8,000 catch basins and over 3,600 outfalls within the urbanized areas in southern New Hampshire. What may seem like small inconsequential logical activities at a small scale quickly become overly burdensome and wasteful when multiplied thousands of times. There are a number of activities prescribed in this permit that we think do little to protect water quality.

Response to comment 7.0(i) –EPA disagrees that the NH Department of Transportation is "the lead agency" in this permit. The permit applies to three particular types of MS4s located within particular geographic areas, only one of which is the MS4 associated with the state operated road system in New Hampshire. EPA acknowledges that is has identified the NH Department of Transportation as the operator of the NH state road system and its associated MS4, based on information previously provided by NHDOT and NHDES in connection with the MS4-2003, and as per 40 CFR § 122.32(a). To the extent that NHDOT is contending that there are additional state agencies responsible for the MS4, EPA's regulations provide that such agencies must apply for a permit to the extent that they qualify as "operators" of the MS4. As EPA stated in the preamble to the Phase II regulations, "MS4s often have several operators. The owner may be responsible for one part of the system and a regional authority may be responsible for other aspects. . . .EPA has revised the regulation language to clarify that 'an operator' must apply for a permit. When responsibilities for the MS4 are shared, all operators must apply." 64 Fed. Reg. at 68750 (December 8, 1999).

EPA recognizes that transportation agencies are not towns, cities or villages and has structured the permit so that provisions that require regulatory and enforcement authority are modified for transportation agencies. See Response to comment 7.0(ii). The bulk of the remaining permit requirements are focused on the physical makeup of the roadway and drainage systems and are appropriately applied to NHDOT's vast system. EPA has revised a number of permit conditions to provide additional flexibility where that could be done without undermining the program objectives, including activities specifically identified by NHDOT. See Responses to comments 2.3.7.1.d.i(i) to (viii) and 2.3.7.1.d.ii(i) and (ii).

Changes to permit: none.

Comment 7.0(ii) from NHDOT - We are very concerned that as EPA becomes more proscriptive with the MS4 regulation and becomes more focused on the municipalities; it becomes more burdensome and less relevant to departments of transportation. Even though we collect and discharge stormwater from our highways in a similar manner, our systems, responsibilities and powers are very different from a municipality. There are requirements in this proposed regulation the Department cannot legally accomplish, have nothing to do with "state" highways or wastes taxpayers' funds. We (NHDOT and EPA) need to review these compliance items outlined above and come to an agreement on EPA' s intentions that are more compatible with our systems, responsibilities and powers. We may also want to invite the Massachusetts Department of Transportation to participate in these discussions as they will likely have similar issues.

Response to comment 7.0(ii) – While EPA agrees that there are notable differences between departments of transportation and traditional municipalities, there are also significant similarities. Both traditional towns and cities and state departments of

transportation construct, maintain and manage extensive networks of roadways and associated drainage infrastructure. Roadways themselves represent a significant percentage of impervious cover in urbanized areas. The manner in which these roadways are managed, including drainage design, winter operations, routine maintenance of drainage structures and pavement, and maintenance of associated rights of way, have many similarities and similar potential for water quality impacts.

In consideration of the differences between traditional municipalities and departments of transportation the 2008 draft identified a number of provisions that were inapplicable or modified for Transportation Agencies, including modification of public education requirements under Part 2.3.2, requirements for policies addressing illicit discharges, construction runoff and development projects that discharge to the transportation MS4 in lieu of ordinances or other regulatory mechanisms, and limitation of green infrastructure and impervious area requirements to the MS4's own facility. In response to NHDOT's specific comments EPA has also made several adjustments to the permit text to address NHDOT's concerns about the applicability of specific controls. With respect to IDDE, the Permit provides that outfalls with a catchment area that is entirely roadway drainage, with no development and no services, may be excluded from the IDDE program, as discussed in Response to Comment 2.3.4.6.d(iii). This exclusion is applicable to traditional MS4s as well but is expected to have the greatest impact on NHDOT due to the nature of its roadway system. The Permit also modifies street sweeping requirements for uncurbed, high-speed roadways, as discussed in Response to Comments 2.3.7.d.ii(i).

EPA recognizes that NHDOT may nonetheless be interested in a permit more tailored to a state Department of Transportation. In that case NHDOT may apply for an individual permit pursuant to Part 1.8.2. EPA notes that it has already been determined that the Massachusetts Department of Transportation will be receiving an individual permit and will not be covered by the Small MS4 General Permits being issued for Massachusetts MS4s.

Changes to permit: none.

II. GENERAL COMMENTS

Comment II.1 from the Seacoast Stormwater Coalition of New Hampshire - The tone of the language in the Draft Permit is a dramatic deviation from the partnership atmosphere that was established between EPA and the small MS4 communities in the first permit cycle. The previous permit succeeded in helping municipalities and regulators work together toward a common useful goal. The NH Seacoast Stormwater Coalition member communities are sincerely concerned that the goodwill and partnership that was established with the EPA and NHDES over the previous five years has the potential of turning adversarial due to the difficulties imposed by the Draft Permit.

The Coalition considers many of the requirements in the Draft Permit to be unreasonable and the timelines are unrealistic. The increased responsibilities of fact finding, water quality evaluations, and administrative record keeping and reporting will require forming entirely new municipal programs and departmental divisions which will take significant resources away from actually implementing and expanding the programs put in place during the first permit cycle. The limited

environmental benefit relative to the increase in cost of implementing the new programs is questionable. Some proposed regulations will require new enabling legislation to provide unprecedented local authority before they can be legally implemented. Municipalities in New Hampshire do not currently have the authority to regulate the older existing private entities to the extent implied by the Draft Permit. Even after the State of New Hampshire develops and enacts the needed enabling legislation, communities that adopted stormwater ordinances under the first permit cycle will still need to revise and re-adopt new more restrictive ordinances to comply. This suggests a lack of understanding on the EPA's part of what has already been accomplished and what is even possible given the existing State statutes and administrative rules. It is especially important during difficult economic times that any new program is built upon realistic implementable goals that focus on producing predictable and accurate results with the most cost-effective methods.

Comment II.2 from the City of Dover – I want to begin by applauding the EPA for adopting the Phase II Stormwater regulations. We share the goal of protecting and enhancing the water quality of our streams, rivers, lakes and estuaries which will improve the ecologic health of our environment.

The manner in which the EPA set out to achieve this goal, in the first permit cycle from 2003-2008, was wise and timely. We have educated ourselves, our co-workers and our communities about the impacts of stormwater and what we must do to improve the management of stormwater to reach our common goal. EPA should be commended for using a performance standard approach in implementing the Phase II program to Date. EPA set specific goals for six minimum control measures to be addressed by each permit tee. The permittee prepared a plan for their community to meet established performance standards. It was the EPA's role to review and approve the plans and then monitor the community's progress implementing its plan. The process required each community to conduct a self assessment of current practices to figure out how to modify its current program to meet the six minimum control measures. The communities, including Dover, have responded. The City of Dover has worked independently and jointly with neighboring communities sharing and stretching resources whenever possible.

We have accomplished much in the first five years and I am confident that we have set a firm foundation to continue moving toward our common goal of better water quality. I am certain the steps we have taken during the first five years have improved water quality.

Can I measure it or show you numbers to validate my claim? No. Unfortunately the desire and need for bean counters and enforcement personnel to have data to point to in order that they might document the proof is evident in the proposed second permit.

> **Response to Comments II.1 and I.2** – EPA recognizes the sincere efforts and cooperative attitude taken by most permittees under the MS4-2003 and hopes to continue a cooperative approach as permit requirements become more demanding and prescriptive during this and subsequent permit cycles. EPA issued the MS4-2003 with an assumption that the baseline for most communities was at a very low level of awareness and management of stormwater systems. As Dover notes, a large part of the goal under the MS4-2003 was to get communities to recognize the scope of their system and the benefits of establishing standards for maintenance, and to educate public works personnel, public officials and the

public about the importance of these systems for water quality in their communities. By and large the MS4-2003 accomplished that goal.

However, EPA has found that the extremely flexible approach embodied in the MS4-2003 had a number of negative consequences. For example, it proved extremely difficult to assess progress in implementing the minimum measures and improving stormwater management practices based on the annual reports, examination of SWMPs and even site visits. EPA is also aware that compliance with the MS4-2003 was not consistently adequate, and that the flexibility inherent in the MS4-2003 was in some cases interpreted in a manner that did not result in improvements in municipal practices or benefits to water quality. The reissued permit is specifically intended to set higher standards and increase EPA's ability to track activities under the SWMPs, consistent with the national approach as stormwater permits are reissued. *See also* 33 U.S.C. § 1251(a) (national goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters").

EPA has nonetheless reviewed the specific comments related to the reasonableness of permit requirements and timelines and has revised a number of permit sections in response. Provisions that have been modified to reduce workload and increase flexibility include outfall monitoring, street sweeping, catch basin cleaning, timelines and reporting requirements.

A. General Comments Related to Permit Flexibility and "One-Size-Fits-All"

Comment II.A.1 from Town of Derry – The Draft MS4GP is excessively and unnecessarily prescriptive in its requirements and lacks the flexibility that would allow permittees to meet the intent of the Clean Water Act by using information gathered under the first five-year permit. In its current form, the draft permit takes on a one-size-fits-all approach and ignores accomplishments, information gathered, and lessons learned that would allow them to modify their program and tailor it to their own jurisdiction. Examples would include the frequency of catch basin inspection/cleaning, street sweeping, or stormwater structure inspection/maintenance. Under the first permit, permittees gathered information to optimize their inspection/cleaning/maintenance program so as to conduct future activities in a practical, efficient, and cost-effective manner. In addition, permittees may have collected data during the first permit that would aid in assessing priority high-pollutant load areas in order to focus its efforts.

Comment II.A.2 from Town of Amherst – This permit seems to be written as a one size fits all format. Urban cities with miles of connected drain pipes feeding stormwater and wastewater treatment facilities are grouped in the same class with smaller communities having only individual residential septic systems and simple road crossing culverts because they share similar population density. This is not fair to the smaller communities as it placed much too great a burden on their staffs and budgets with no federal funding for some of the mandates being placed upon the MS-4 communities.

Comment II.A.3 from City of Dover - The EPA's proposed prescriptive methods to implement the second permit and timing will not be successful. I urge you to rethink the permit approach in light of the economic realities and cooperative nature and success achieved with the first permit.

The City of Dover strongly suggests that EPA return to the concept of setting reachable standards and allowing each community plan how it will achieve them. The results of the work done during the first permit have not gone unnoticed. Our field staff now understands the scope of the system they are responsible for. They recognize that the program of cleaning catch basins has resulted in a better functioning system noting that there are many less backups and flooding during large precipitation events. The Phase II program has given the City staff a forum to educate our policy makers that more money is required to do the necessary work to have a fully functioning and eco friendly drainage system. Our policy makers are anticipating the need for additional funding to support the storm drainage system, but I am sure there are limits to the extent of the increases given the economic situation today. Please reconsider the proposal by selecting key items in the proposal that raise the bar requiring more of us and results in improved water quality.

Comment II.A.4 from City of Nashua - The updates of the 2003 Permit to the Draft 2008 Permit will require, in part, extensive monitoring of outfalls and biannual cleanings of the approximately 6,500 catch basins in the separate section of the city. The Division of Public Works is aware of the areas in the City requiring extra attention for street sweeping and catch basins maintenance and reacts to it. The online Customer Services request form allows a resident to notify the City of a drainage issue or a suspicious discharge. Knowing the areas in the city of concern for stormwater pollutants and having a mechanism for residents to be included as watch dogs for drainage issues allows the staff to locate, react, and implement procedures for removing potential pollutants to the waterways. We view this approach that concentrates the attention to areas most needing it a more prudent one. We believe that the success in the NH municipalities is being judged as limited because much of the five year period has been expended in planning, budgeting, initial implementation and standardizing of its measures. More time is needed to adequately evaluate these measures and make needed improvements. . . .

The City feels we are proactive in our Stormwater Management Program and are sensitive to focusing on the problematic areas of the city. As the CSO Program continues to go forward, and the City continues to implement its Stormwater Management Plan, we continue to move towards the mutual goal of improved water quality in the waterways. In order to achieve this outcome, the City would like to continue with the approved 2003 Permit requirements and complete those tasks which are outstanding or could be improved upon rather than being burdened with additional requirements without a mechanism to fund these new mandates.

> **Response to comments II.A.1 to 4** – EPA recognizes that the reissued permit takes an approach that is both more detailed and more protective than the MS4-2003. In implementing the statutory requirement to reduce pollutants to the maximum extent practicable (MEP), EPA has interpreted the MEP requirement as representing an iterative approach that requires that standards be raised each permit term so that progress will be made toward the attainment of water quality standards and towards the goals of the Clean Water Act established by Congress. *See* 33 U.S.C. § 1251(a) (national goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the

Nation's waters"). EPA has also used the knowledge gained from its experience under the MS4-2003 to establish detailed requirements where appropriate. For example, the changes to the IDDE programs between the MS4-2003 and the reissued permit are based on EPA's extensive experience with the weaknesses of existing programs and the importance of these measures to improving water quality.

EPA recognizes that one of the difficulties inherent in writing a prescriptive General Permit, for such a wide range of municipal permittees, is the risk that the permit will fail to allow appropriate differentiation among areas where different levels of investment are appropriate. This could result if low density suburban communities are implementing programs designed for city centers, as suggested by the Town of Amherst, or where resources are diverted within a community from areas of greater need. For this reason, EPA allows any eligible permittee to apply for an individual NPDES permit that will allow for more individualized consideration. See 40 CFR § 122.33(b)(2); Permit Part 1.8.

Within the context of the general permit itself, EPA has sought to allow for appropriate differentiation to the extent possible in a general permit, and has made changes from the 2008 draft to the new Draft Permit where it appears that a uniform requirement was not appropriate.

For example, the IDDE requirements as originally put forth in the 2008 draft were based on procedures EPA has used in very urban areas. To reflect the fact that a different approach may be more appropriate in a less urbanized area, the new Draft Permit allows a permittee to take various "vulnerability factors" into account in designing its IDDE program. MS4s can thus gain efficiencies by customizing their programs while still meeting permit objectives. To a large extent these provisions are self-limiting – e.g. dry weather screening will be less burdensome where outfalls are not flowing, as expected in less dense areas with small contributing catchments. However wet weather screening in many cases would be far more resource intensive to less dense communities with highly distributed drainage systems and high numbers of outfalls, as compared to urban centers where large areas drain to each outfall. This was recognized as an area where the uniform requirement placed a greater workload on communities with less potential benefit (in terms of illicit discharge reduction), and has been modified. EPA notes that application for an individual permit remains an option for small MS4s.

B. General Comments Related to Funding

Comment II.B.1 from City of Dover - As we all know, the economy is in crisis. The City of Dover has a 2.5% tax cap in place. The Federal and State government have cut back contributions for entitlements such as Medicare where the local community is now required to pay larger shares. Citizens are losing jobs and will be late with or default entirely on paying their taxes and properties are going into foreclosure. Local government will also be faced with cutting budgets by cutting back on staffing and programs. The additional requirements, proposed in the new permit, set the communities up to fail which subsequently sets the MS4 program up to fail. The EPA will be forced to begin enforcement action against many of the communities for not satisfying the

minimum standards; thereby, going from a cooperative effort to achieve a common goal to an adversarial relationship in which progress towards the goal is lost.

Comment II.B.2 from Town of Derry – Complying with the requirements of the draft permit would require a significant increase in the level of resources. Some of these include the effort and costs associated with the outfall monitoring and analytical testing, and certain tasks at EPA-specified schedule (without allowing flexibility based on permittee's experience and knowledge such as catch basin inspections and cleaning, street sweeping). In the current economic climate, municipal budgets are being trimmed to levels that may require staff reductions and cuts to all programs. In addition, the timing of the public release of the draft permit (if funds were even available) could not be budget for the next fiscal year. As a result, permittees are destined to fail due to lack of funding and resources alone.

Comment II.B.3 from Town of Amherst – The Town of Amherst has been annually budgeting $15,000 for our stormwater program since the program's inception in 2003. Until this time this budget has been sufficient to support the program and the requirements of the NPDES MS-4 permit. Under the new permit requirements and in these difficult economic times, this budget will need to be tripled or quadrupled to meet the requirements of the new program with no federal assistance to help support the cost increase. The municipal budgets are currently very lean with little to no room for line item increases and at this time the proposed permit will be unfeasible with the money that we have to work with. Where will the funds to support this revised stormwater permit come from?

Comment II.B.4 from Steve Miller - I understand the perspectives of the speakers (at the January meeting) when they expressed their concern about the cost the new proposed rules would inflict on the municipalities. I know this to be a real problem as I know how hard some municipalities have worked to reduce impacts of runoffs. But I also know first hand that many decision makers see water quality as a secondary issue of little concern and a great deal of work toward solving these issues is of the "lowest common denominator sort". Efforts are only what "is required" and no more. A lot of work is done to meet minimum standards with little or no consideration of the goal of cleaner water. The pressure from and responsibility to the taxpayer are the first two things that are considered when dealing with stormwater. Generally the third thing considered by municipalities is how to deal with stormwater so as not to in any way impact development because taxable development is king. These are real and important perspectives.

Comment II.B.5 from the Town of Rochester - A little background. The City of Rochester is located 20 miles north of here. The population is 31,000. I would characterize Rochester as a working class community probably in the bottom third in terms of per capita income in the State of New Hampshire and therefore its ability for its people to pay.

During the first permit round in 2003, you issued essentially the six minimum controlled guidelines and asked us to create a stormwater manager plan which we essentially took stock of the goals in the general permit and looked at what we could do, what we could achieve within the context of our resources and prepared a plan which we felt was doable by the city and its residents and within the framework of the city s ability to pay and meet its resources with the goal of achieving improved stormwater quality into the environment.

We prepared our plan, submitted it to you and it was approved and in the intervening five years worked and met all of the elements of our stormwater management plan. In fact, during the permit period, we added some things as a result of input from our residents ideas as the program matured and in a period of pretty good economic times we were able to do some things such as build a new salt shed, and implement a new stormwater management ordinance and which enhanced our controls of property development.

Rochester was one of the fastest growing communities in the state of New Hampshire during this period. Development has slowed down considerably as a result as income into the city's coffers. Just this past year, however, with the turning south of the economy there been increased pressures on our citizenry to essentially say stop to increased government spending. We are one of the few communities in the state, our residents voted this past November overwhelmingly to support a tax cap, and now the city is entering a new era of fiscal discipline where we really cannot add new programs, we cannot do new construction and we will essentially have to scale back on a lot of the goals that we had been able to achieve in the past because of these constraints.

This is just at a time now where you are issuing a new permit, and it appears to be much more prescriptive and will add increased burdens and requirements that will cost significant amount of money such as the outfall monitoring as an example. Some of these things we might be able to do in- house, but many or much of it we can't. Essentially given the time line and the clash of the period of reduced revenues and increased responsibilities is something that will be much more difficult for us to do unless there is additional sources of revenue from the outside such as federal grant money, the state has stepped up now with the SRF program to now incorporate loans for stormwater purposes which has not been historically the case but loans can only go so far. It adds to a community's debt burden, regardless of the source and in order to adequately complete these things to meet your goals we really have to look at opening up grant money for programs like this if you want to have a successful permit program.

Comment II.B.6 from City of Portsmouth (Bohenko) - Good morning, and my name is John Bohenko. I'm the city manager of Portsmouth. I want to thank you for the opportunity of comment with regard to the EPA proposed changes to the general permit for MS4 s in New Hampshire. The City of Portsmouth, as you may be aware, is located on the Piscataqua River. Has a population of approximately 21,000 and consists of approximately 17 square miles. Portsmouth' s city storm drain infrastructure consists of approximately 323, 000 lineal feet of pipe, 4,700 catch basins or manhole structures and 450 outfalls.

The City of Portsmouth has a longstanding commitment to the environment. We've adopted the eco municipality designation resolution in 2007 which means we have aspired and developed in ecologically and socially healthy community for long-term. We've completed the first LEED certified municipality in New Hampshire with our public library. In the city s wastewater treatment master plan, we have committed to advanced treatment for nutrient removal as part of our future upgrades. City employees participate in the state's water quality standards and advisory board. The city understands the importance of the environment and the programs that protect and/or improve our natural resources. We are committed to the intent and goal of the Clean Water Act. We appreciate the difficulty EPA faces trying to regulate stormwater that runs off of private and public lands, parking lots, driveways, streets and sidewalks to our local

waters. Although we applaud EPA's efforts in this area some aspects of the proposed permit are excessively burdensome and will not improve stormwater quality.

Some of the proposed changes will shift money and time away from infrastructure and operational improvements that yield water quality benefits and instead focus on administrative activities that offer little environmental benefit. The city has evaluated the draft permit to determine the cost impacts related to your implementation of the new requirements. We estimate the compliance will cost approximately 2. 1 million dollars over the permit cycle which will require between a 6% and 7% increase in the public works department budget. This corning at a time when the city is working towards a zero budget increase is just intolerable.

It is our position that money should go to infrastructure and operational improvements that will have water quality benefits. The permit as presently drafted, would create a significant administrative burden. This distracts from the city s ability to provide direct benefits to water quality through such activities such as increased street sweeping, catch basin cleaning and/or conducting construction site inspections. The city is submitting written comments to 'the draft permit. Those comments include proposed changes to the permit as drafted.

I want to take this opportunity to thank you for allowing me to provide these comments on the proposed permit. In submitting our comments we look forward to working together with the regulators to develop a permit that protects the water quality in a cost effective and practical manner. Thank you.

Response to Comments II.B.1 to 6 –

EPA recognizes the concerns raised by multiple commenters over the cost of the Permit requirements under the 2008 draft and the limitations of municipal funding. Cost estimates within the comments range from a low of $45,000 (Amherst) to a high of $850,000 (Manchester) per year. EPA has performed its own cost analyses, discussed in greater detail below, and agrees with the general scale of those estimates. EPA also agrees that in some permit parts the 2008 draft provisions did not provide sufficient flexibility for permittees to devise programs appropriate to their specific systems. In those cases EPA has revised the permit requirements, in many cases reducing the estimated cost of program implementation. EPA has determined that these revised requirements meet the MEP standard.

Even with a reduction in costs in connection with the revised Permit, EPA recognizes that compliance with this permit will require substantial investment by permittees to reduce the discharge of pollutants from their systems and address water quality impacts of their discharges. This is in keeping with the national goal of the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). While Congress temporarily exempted small MS4 stormwater discharges from meeting the Clean Water Act's permitting requirements, *see* 33 U.S.C. § 1342(p), that moratorium ended almost two decades ago. The small MS4 permit from its inception was intended to be iterative in nature, with increasingly stringent requirements as permits are reissued. While progress was made in the last permit term, the bar needs to be raised for the objectives of the Clean Water Act to be addressed. Federal Clean Water Act requirements

are not, of course, dependent on municipal decisions to self-impose or enact tax caps, and while EPA is sympathetic to permittees facing budget restrictions, many communities have made the necessary investments that the Clean Water Act requires. Furthermore, the CWA prohibits EPA from considering cost in developing water quality-based limits. *See U.S. Steel Corp. v. Train*, 556 F.2d 822, 838 (7th Cir. 1977); *In re Star-Kist Caribe, Inc.*, 3 E.A.D. 172 (EAB 1990).

With respect to the specific cost estimation and reductions expected to be realized with the revisions to the permit, EPA has performed a cost estimation of permit requirements. EPA has gathered information on program implementation costs provided from comments by municipalities; annual reports submitted during the previous permit term; informal interviews with municipal stormwater coordinators; data gathered by Horsley Witten as part of the cost estimation for the Charles River Draft Residual Designation Permit; and 3rd party vendors and consultants. Using best professional judgment, EPA compiled this information to estimate the range of costs for municipalities to implement the minimum control measures and monitoring provisions included in Parts 2.3 and 3.0 of the permit.

The estimated costs considered for implementing each of the minimum control measures are identified in Table II.B1. Where information was unavailable to develop cost estimates for certain permit provisions, EPA combined and incorporated assumed costs for these provisions as a contingency. The estimate does not include potential costs associated with permit requirements that may not apply uniformly to all permittees due to the nature of existing MS4 discharges and the prevalence of discharges to impaired receiving waters. Specifically excluded are costs associated with the water quality based effluent limitations in Parts 2.1 and 2.2 of the permit. EPA estimates that the permittees' cost to implement these requirements to be between $106,000 and $1,149,000 per year (2010 dollars) averaged over the term of the permit. The large range in this estimate is due to differences among the municipalities implementing these requirements including: size of permit area, number of roadway miles, number of outfalls, and degree of urbanization. The estimate represents the average annual cost of compliance with the identified permit provisions. In some instances, the estimate reflects costs of certain provisions that the permittee has already completed or implements as standard practice (e.g. street sweeping) or in fulfillment of a 2003 permit requirement (e.g. ordinance or bylaw). Table II.B.1 also provides an estimate of the potential increase in cost to implement the 2008 draft permit provisions in comparison to the 2003 permit.

Cost Implications of Revised IDDE Program and Monitoring

As further described in the Responses to comments 2.3.4.6.d(iii) and 2.3.4.6.d(xi), EPA has modified the Outfall Monitoring Requirements (Section 3.0) and provided an extended schedule for completion of illicit discharge investigations. The detailed basis for these changes is provided in the specific Responses to comments cited above; this discussion concerns the cost implications of those changes only. A comparison of the updated requirements can be found in Table II.B.2. As can be seen by Table II.B.2, the outfall monitoring burden placed on municipalities has been reduced by limiting the scope of Wet and Dry Weather Monitoring (section 2.3.4.9 and 3.0) as well as limiting the scope of

catchments subject to IDDE implementation (Section 2.3.4.8 of the 2008 draft). EPA has also extended the timeline for completion of the IDDE program to ten years, in order to reduce the annual burden of the IDDE program on municipalities. Even with the addition of Post Correction Follow-up Screening and Ongoing Outfall and Interconnection Screening requirements in the Permit, the changes in IDDE implementation and monitoring requirements decreases the estimated average annual cost of these two requirements. The low estimate to comply with the outfall monitoring requirements decreases from an average annual cost of $3,000 per year in the 2008 draft to $2,000 per year. The high estimate to comply with the outfall monitoring requirements decreases from an average annual cost of $31,000 per year in the 2008 draft to $16,000 per year in the revised Permit.

Cost Implications of Revised Street Sweeping Provisions

In addition, as discussed in the Response to Comment 2.3.7.d.ii(i), EPA has modified the street sweeping requirements. The required sweeping frequency has been reduced from two times per year to one time per year during the spring months, with more frequent sweeping on a targeted basis as determined by the permittee. The detailed basis for these changes is provided in the specific Responses to comments cited above; this discussion concerns the cost implications of those changes only. In the 2008 draft, street sweeping could account for as much as 26% (prior to application of the 30% contingency) of the total amount spent per year complying with the minimum control measures described in Table II.B.1. EPA believes that the change in the permit requirement will allow the permittee to achieve equivalent pollutant reduction benefits to that under the 2008 draft requirement at reduced cost through appropriate targeting of areas for increased sweeping based on land use, pollutant load, impaired waters and other factors. Therefore EPA estimates that street sweeping costs are approximately 25% less than under the 2008 draft requirements.

Revised Draft Permit Estimated Cost

EPA estimates that implementing the requirements of the minimum control measures and monitoring requirements found in the new Draft Permit could cost between $78,000 and $829,000 (see Table II.B.3). These costs represent a potential reduction in annual costs of between $22,000 and $210,000 from the 2008 draft conditions.

Increased Costs Over Current Practice

EPA notes that many communities in New Hampshire have completed some of the requirements in the revised Permit via asset management or otherwise. In those cases the program costs for these municipalities will be less than what is estimated in Table II.B.3. For example, many communities already sweep all streets once per year, and commercial areas more frequently, as reported in annual reports submitted under the 2003 permit. In those cases, the incremental cost of the new permit would be reduced by approximately 15%. Similarly, permittees who have already completed system mapping could have up to a 10% reduction in new costs.

Table II.B 1: Range of cost for implementing the 6 minimum control measures associated with the 2008 draft[1]

Minimum Control Measure(s)	Costs Considered	Low Annual Average Cost		High Annual Average Cost	
		2008 Draft[2]	MS4-2003[3]	2008 Draft[2]	MS4-2003[3]
(1)Public Education and Outreach (2)Public Participation (3)Construction Site Runoff Control (4)Post Construction Runoff Control	Public education and outreach programs, construction and post construction site inspections, SWPPP development, and administrative costs[4]	$ 3,000	$ 1,000	$ 203,000	$ 99,000
(5)Illicit Discharge Detection and Elimination	System Mapping[5] and IDDE Planning	$ 14,000	No applicable data from previous permit term	$ 74,000	No applicable data from previous permit term
	IDDE Implementation[6]	$ 3,000	No applicable data from previous permit term	$ 10,000	No applicable data from previous permit term
	Outfall Monitoring[7]	$ 3,000	No applicable data from previous permit term	$ 31,000	No applicable data from previous permit term
(6)Good Housekeeping	Catch Basin Cleaning[8]	$ 28,000	$ 11,000	$ 225,000	$ 110,000
	Catch Basin Inspection	$ 14,000	NA	$ 113,000	NA
	Sidewalk Sweeping	$6,000	NA	$ 61,000	NA
	Street Sweeping	$ 11,000	$ 6,000	$ 167,000	$ 84,000
Total		$ 82,000	$ 18,000	$ 884,000	$ 194,000
Total Including Contingency[10]	+30% (rounded to nearest $1000)	$ 106,000		$1,149,000	

Notes:

1- Costs presented represent an estimate of program cost and only includes those activities specifically identified. Due to insufficient cost information, the following practices associated with the minimum control measures have not been included in the cost estimate and are assumed to be covered within the 30% contingency applied to derive the total cost estimate:

a. Development of a construction site runoff control program (§2.3.5.3)

   b. Creation or updating of a post construction stormwater management ordinance or regulation (§2.3.6.4)
   c. Development of procedures to require submission of as built drawings to ensure proper post construction stormwater control (§2.3.6.3)
   d. Development of a report assessing local requirements affecting the creation of impervious cover (§2.3.6.5)
   e. Development of a report assessing local regulations affecting the use of low impact development techniques (§2.3.6.8)
   f. Tracking of directly connected impervious cover and development of a report assessing local requirements affecting the creation of impervious cover (§2.3.6.8)
   g. Development of Operation and Maintenance procedures and programs for municipally owned properties (§2.3.7.1)
   h. Any maintenance of stormwater infrastructure or maintenance of stormwater BMPs
   i. Additional administrative costs not accounted for in Note 4, including salaries for dedicated stormwater management employees.

2- Cost estimates include the following assumptions:
   a. Regulated population – Low: 1,000; High: 100,000
   b. Staff cost: $35 per hour, no requirements are assumed to be completed by outside consultants (a 50% fluctuation in staff costs only results in a an approximate 15% fluctuation in overall program cost)
   c. Number of curb miles (total miles multiplied by 2) – Low: 50; High: 800
   d. Street sweeping is assumed to be conducted by a 3rd party at $104 per lane mile
   e. Catch basins – Low: 1,000; High: 10,000
   f. IDDE protocol implementation
      Key junction manholes – Low: 20; High: 1,000
      Dye testing – Low: 2 days/yr; High: 8 days/yr
   g. Outfalls – Low: 20; High: 600
   h. SWPPPs – Low: 2; High:10 (cost averaged over permit term)

3- Average annual cost of the previous permit term is an estimate of the cost of implementing the minimum control measures as required by the 2003 Permit or what municipalities may consider standard practice. For the purposes of this calculation, it was assumed that municipalities swept their streets once per year and cleaned each catch basin once per permit term. It was also assumed that the 2008 draft would cause a doubling of administrative costs and does not include any SWPPP development cost.

4- Administrative costs include general minimum measure administration, interagency agreement coordination, and annual reporting. SWPPP development cost is equal to $2,500 per SWPPP. (Both are based on cost estimations for three towns as reported by Horsley Witten[26]).

5- Assumes no mapping was completed during the 2003 permit term and all mapping is complete by the end of year 2 of the new permit term.

6- IDDE protocol implementation assumes screening of 20 manholes per day using test kits for analysis of NH_3 and Surfactants, 2/3 of junction manholes inspected will have flow and will require screening (conservative estimate). Cost of removing the illicit connection is not included as part of the assessment.

7- Outfall screening includes wet and dry weather screening of all outfalls during the permit term starting in year 2. Cost assumes 15 outfalls screened per day during dry weather and 2/3 of outfalls (conservative estimate) will have flow. Cost estimate assumes 8 outfalls screened per day during wet weather. pH, conductivity and temperature are assumed to be measured with a handheld meter. NH_3, surfactants and chlorine are assumed to be analyzed using test kits. Bacteria samples are assumed to be analyzed by a laboratory. Cost also includes a 30% contingency to account for sampling for pollutants of concern.

8- Cost of catch basin cleaning is assumed to be $55 per catch basin which includes time, disposal costs and optimization software.

9- Contingency applied to provide a conservative estimate that account for errors assumptions and requirements not accounted for explicitly (see Note 1).

[26] Horsley Witten, 2011. Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin, and Milford, MA

Table II.B.2: Summary of IDDE and Monitoring sections changes from 2008 draft to New Draft Permit

Permit Condition	2008 draft Part and Requirements	New Draft Permit Part and Requirements
Dry Weather Outfall and Interconnection Screening	Part 3.0 Complete 25% of dry weather inspections and Screening per year starting year 2 (100% by the end of permit term) for ammonia, chlorine, surfactants, bacteria, temperature, conductivity, pH, potassium and turbidity	Part 2.3.4.9.a Inspect and sample all outfalls and interconnections for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity within 2 years unless: 1. Catchment is designated as a problem catchment 2. Catchment is exempt from Screening[1] or 3. Outfall was sampled during previous permit term for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity
Wet Weather Outfall and Interconnection Screening	Part 3.0 Complete 25% of wet weather Screening per year starting year 2 (100% by the end of permit term) for ammonia, chlorine, surfactants, bacteria, , conductivity, pH, potassium and turbidity	Part 2.3.4.8.e(ii)(b) Limited to catchments with system vulnerability factors (as defined in 2.3.4.8.e(i)); sample for ammonia, chlorine, surfactants, bacteria, temperature, and conductivity as part of catchment investigation procedure pursuant to schedule below.
Catchment Investigation	Complete 100% of catchments within 5-year permit term	Part 2.3.4.8.f • Year 3: Complete 80% of Problem Catchment Investigations • Year 5: Complete 100% of Problem Catchment Investigations and 40% of all Catchment Investigations • Year 10: Complete 100% of all Catchment Investigations
Dry Weather Post-correction Follow-up Screening	None	Part 2.3.4.8.f Inspection/sampling for ammonia, chlorine, surfactants, bacteria, temperature and conductivity within 1 year of Catchment Investigation completion and removal of all illicits found
Wet Weather Post-correction Follow-up Screening	None	Part 2.3.4.8.f Screening for ammonia, chlorine, surfactants, bacteria, temperature and conductivity within 1 year of Catchment Investigation completion and removal of illicits on those catchments meeting wet weather vulnerability criteria[2]
Ongoing Periodic Screening	None	Part 2.3.4.8.g Conduct Dry Weather and Wet Weather (if applicable) Outfall and Interconnection Screening once every 5 years from last screening event.

Table II.B.3: Range of cost difference for implementing minimum control measures associated with the 2008 draft and New Draft Permit[1]

Minimum Control Measure(s)	Costs Considered	Low Annual Average Cost		High Annual Average Cost	
		New Draft Permit[2]	Change from 2008 draft [3]	New Draft Permit[2]	Change from 2008 draft [3]
(1)Public Education and Outreach (2)Public Participation (3)Construction Site Runoff Control (4)Post Construction Runoff Control	Public education and outreach programs, construction and post construction site inspections, SWPPP development, and administrative costs[4]	$ 3,000	$ 0	$ 203,000	$ 0
(5)Illicit Discharge Detection and Elimination	System Mapping[5] and IDDE Planning	$ 14,000	$ 0	$ 74,000	$ 0
	IDDE Implementation[6,7]	$ 1,000	$ -2,000	$ 8,000	$ -2,000
	Outfall Monitoring[7,8]	$ 2,000	$ -1,000	$ 16,000	$ -15,000
(6)Good Housekeeping	Catch Basin Cleaning[9]	$ 28,000	$ 0	$ 225,000	$ 0
	Catch Basin Inspections	$ 3,000	$ -11,000	$ 23,000	$ -90,000
	Sidewalk Sweeping	$ 0	$ -6,000	$ 0	$ -61,000
	Street Sweeping	$ 9,000	$ -2,000	$ 89,000	$ -42,000
Total		$ 60,000	$ -22,000	$ 638,000	$ -210,000
Total Including Contingency[10]	+30% (rounded to nearest $1000)	$ 78,000		$ 829,000	

1- See Table II.B.1, note 1.
2- See Table II.B.1, note 2. Wet weather screening cost assumes percent of outfalls with system vulnerability factors – Low: 10%; High: 90%
3- Negative numbers indicate a decrease in annual cost from the 2008 draft condition.
4- See Table II.B.1, note 4.
5- See Table II.B.1, note 5.
6- See Table II.B.1, note 6.
7- 3% of outfalls and catchments are assumed to be exempt from screening and the IDDE implementation .
8- Outfall screening includes dry weather screening of all non-exempt outfalls within two years and wet weather screening of those outfalls whose catchment contains system vulnerability factors (Part 2.3.4.8(e)(i)) during catchment investigation (40% of catchments by end of 5-year permit term). Cost assumes 15 outfalls screened per day during dry weather and 2/3 of outfalls (conservative estimate) will

have flow. Cost assumes 8 outfalls will be screened per day during dry weather screening. pH, conductivity and temperature are assumed to be measured with a handheld meter. NH_3, surfactants and chlorine are assumed to be analyzed using test kits. Bacteria samples are assumed to be analyzed by a laboratory. Cost also includes a 30% contingency to account for sampling for pollutants of concern. Dry and wet weather completion screening begin to take place in year 3 based on number of Catchment Investigations completed in year 2. Ongoing Periodic Screening begins to take place 7 years from permit issuance.

9- Cost of catch basin cleaning is assumed to be $55 per catch basin which includes time, disposal costs and optimization software.

10- Contingency applied to provide a conservative estimate that account for errors assumptions and requirements not accounted for explicitly (see Note 1) as well as costs associated with development of WQRPs (Part 2.2.2).

Changes to permit: none.

Comment II.B.7 from City of Manchester - The concern that we have along with the other communities that were represented at the public hearing is with the costs associated with this program. The City of Manchester estimates that compliance with this permit will cost at a minimum an additional $850,000 per year above what is already being spent to comply with the current permit. This cost is 1/3 of the entire personnel cost for a staff of 44 employees at the wastewater treatment plant. In this economic environment with budget cuts and lost revenues the communities that are regulated under this permit including Manchester would have a difficult time ensuring these funds will be available and therefore complying with this section based on the current permit requirements and associated costs.

. . .

[The catch basin cleaning] requirement is the most expensive cost to all Phase II communities throughout New England. This would be very costly to the City of Manchester. The City has l4,000 catch basins in its system. The cost to clean half of the basins every year would cost the City approximately $350,000 per year and the cost to inspect the other half of the catch basins would be approximately $350,000 per year. There is also a requirement to inspect all stormwater structures annually. The City has 3,000 drainage manholes that would cost approximately $150,000 per year to inspect them. Total compliance cost for just this part of the permit would exceed $850,000 annually.

Currently, as documented in the past five year annual stormwater reports, Manchester cleans between l,800 and 2,000 catch basins (about 15% of the City's basins). One thousand of these are hired out to a private contractor and between 800 to 1,000 are completed by the City. The catch basin contractor also works for other communities and the NH DOT. We are hard pressed to get them to fulfill their commitment of 1,000 catch basins cleaned annually.

The City has two vactor trucks. These are used to clean sewer and drain lines, clean siphons, clean sewer manholes as well as drain manholes along with use for emergency blockages and root cutting. Neither Manchester, nor other communities could fulfill this requirement as there is not nearly enough equipment to get this work completed. Manchester would have to buy a third and possibly a fourth vactor truck or discontinue the sewer drain and siphon cleaning program. This is in direct conflict with the CMOM requirements of our NPDES. As you can see this places Manchester along with all other communities between a rock and a hard place and sets every permittee up for failure.

It may be prudent to place the 20% criteria for cleaning in the permit to cover the five-year permit cycle. Manchester could struggle to go from l5% to 20% and probably accomplish this, but it would be improbable to go from 15% to 50%.

The above rationale would also apply to the inspection requirement. Rather than 100% every year, Manchester believes that an easing into the program of 20% a year is the upper end of the labor intensive limit without adding staff to the already anticipated $875 000 annual increase the current proposal requires. The dry weather screening reflects this rational, and as the catch basin cleaning and inspection is so much more labor and cost intensive, justifies completing this requirement over the five-year permit cycle.

The City of Manchester currently does the following for the stormwater program. The system is 60% combined. Most of the catch basins, drainage structures, and storm sewers discharge to the combined system and therefore to the Wastewater Treatment Facility. Currently the City cleans all the catch basins that surround the urban ponds twice per year to protect these water bodies from sediment loadings. The structural BMPs such as baffle tanks, forebays, and particle separators get inspected twice per year and they get cleaned at least once per year. Many do get cleaned twice per year. Our crews also clean some other catch basins. The City of Manchester contracts out catch basin cleaning above what they clean with their own crews. The contractor cleans approximately 1,000 basins per year based on the funds allocated.

Our past five annual reports have shown that this is adequate to address stormwater issues from the previous permit. We believe a continuation of this level of effort, with a modest incremental increase in expectations is warranted, but not to the level as proposed in the draft permit.

Response to Comment II.B.7 – EPA has made several modifications to the permit in an effort to reduce some of these costs.

With respect to cost estimates, the City of Manchester estimates an overall cost of $850,000 over and above its current spending, and a total of $875,000 for the operation and maintenance requirements alone (presumably this includes some costs that are currently being incurred) equaling a total compliance cost of $1,725,000 per year to comply with the 2008 draft permit. EPA has produced its own cost estimate calculator for the 2008 draft permit, and based on the system data provided by Manchester has estimated a total cost of approximately $950,000 for the City of Manchester, with an increase of approximately $700,000 over an assumed baseline of spending intended to reflect standard operations. In other words, EPA's estimate is $**775,000** lower than the City of Manchester's estimate as provided in its comment.

One significant difference between the estimates for compliance with the 2008 draft permit is in the assumed cost of inspections. First, the Draft Permit was not intended to require annual inspections of drain manholes, and the permit has been revised to indicate that annual inspection of stormwater structures applies only to structural stormwater treatment BMPs (not including catch basins). Manholes inspections are required in connection with the IDDE program but these occur over an extended period and apply only to key junction manholes. Second, EPA assumed that catch basin inspections would occur in conjunction with cleanings, and that the cost of inspecting the catch basins that were not cleaned in a

particular year would be approximately half the cost of cleaning. These differences would result in a reduction of approximately $225,000 per year.

EPA has made changes to the 2008 draft permit that will allow targeting of efforts to areas needing greater attention and therefore reduce these costs. Annual catch basin inspections are no longer required and catch basin cleaning had been changed to a performance-based standard (goal of no more than 50% full), as discussed in Response to Comments 2.3.7.d(i) to (viii). EPA recognizes that this may or may not reduce overall catch basin cleaning frequency, although it will allow the City to target areas with higher sediment loads and leading to impaired waters (as well as target catch basins that are filling more frequently through source controls such as additional street sweeping and improved construction erosion and sediment control). EPA expects that some inspections may be still necessary to develop and implement the optimization program. Based on the City's estimate, these would likely be a small percentage of the total number. The changes to the permit are expected to reduce costs by on the order of $300,000/year. The revised Draft Permit also eliminates the requirement for sidewalk sweeping and eliminates the requirement for a fall street sweeping of all streets, as discussed in the Responses to Comments 2.3.7.d.ii(i) to (iii). In addition, the revised Draft Permit includes revised monitoring requirements that will substantially reduce those costs, through allowing use of field kits, reduction in monitoring parameters, and reduction in wet weather monitoring requirements. See Responses to Comments 2.3.4.6.d(i) and (ii). EPA estimates that these changes will reduce estimated costs by approximately 25 percent from the 2008 Draft Permit requirements, even if overall catch basin cleaning frequency remains an average of every other year under the revised performance based approach.

EPA also notes that the above estimates assume that all of the identified structures are within the separate stormwater system. As the City of Manchester has noted, 60% of their system is a combined system. The combined system structures are not subject to the requirements of this permit. Operations in those areas are governed by the City's CMOM under its treatment plant permit.

Comment II.B.8 from City of Portsmouth – The total estimated cost to comply with this Permit, an additional $2 100 000 over the five year permit cycle, would constitute a 6-7% increase in the City s current Public Works budget. Due to the current national economic crisis, the Portsmouth City Council has mandated a zero increase in the all City budgets, therefore other essential programs would need to be reduced or cut to accommodate these expenditures.

. . . The requirement to complete an inventory and prioritization of MS4-owned property and infrastructure that may have the potential to be retrofitted is a burdensome and inappropriate requirement. The City of Portsmouth owns 184 parcels of land totaling 1 140 acres. The City estimates a cost of at least $54 000 to complete this task. To require cleaning of an additional 25% of structures, whether they need it or not, would cost the City an additional 1000 labor hours]

. . . The City's cost to complete the dry weather screening as currently presented in the Draft General Permit would be approximately $13 000 per year. . . .The City of Portsmouth estimates it will cost $98 000 per year to conduct wet weather monitoring.

Note: The City of Portsmouth also submitted detailed spreadsheets outlining the cost of compliance with its comments. The complete spreadsheets are available for review on EPA's website at http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/nhsms4comments/Comments2.pdf#page=3

Response to Comment II.B.8 – EPA appreciates the detailed cost estimates provided by the City of Portsmouth, which have been extremely helpful in assessing overall costs as well as the costs of specific permit items. As stated in the response to Comment II.B.7, EPA has made a number of changes in the permit that reduce those costs to the extent possible consistent with the MEP standard. As they affect the costs reported by the City of Portsmouth, these changes should reduce overall costs by nearly 40%, as set forth below:

First, the City of Portsmouth reports that the cost of annual catch basin inspections and biannual cleaning is $203,040 for its 4,700 catch basins. EPA has modified the catch basin requirement to mandate a cleaning goal of no more than 50% full, with no mandate for inspections. See Response to Comments 2.3.7.d(i) to (viii). While some inspections will be required to design the program and ensure it is meeting the stated goal, EPA assumes that this can be accomplished with targeted inspections. EPA does not assume that there will be an overall reduction in catch basin cleaning frequency, although the permit now allows flexibility to clean some catch basins less frequently while others are cleaned more frequently. Using the City's cost basis (20 minutes per inspection by a crew of two), this should reduce annual cost by approximately $100,267 (2,507 hours).

With respect to monitoring, EPA notes that the cost per outfall of the monitoring requirement has been substantially reduced by the reduction in parameters and the allowable use of field kits. The City of Portsmouth estimated an "outside services" cost of $712/outfall (in addition to a staff cost totaling 4 hours per outfall), which EPA assumes reflects the cost of laboratory analyses. The use of field kits should reduce analytical costs to approximately $70 per outfall where the receiving water is not impaired (and thus requiring additional analyses). For impaired waters (obviously of significance to Portsmouth, where nearly all waters are impaired), the new Appendix H outlines the required parameters for monitoring for specific impairments. A number of impairments, such as those for dioxin and PCBs, are not considered to be related to municipal stormwater discharges and monitoring is not required for such pollutants. Additional monitoring requirements will be required for most outfalls, however, ranging from relatively inexpensive pH monitoring for discharges to South Mill Pond to extensive metals, PAH and Total Nitrogen analysis for discharges to Upper Sagamore Creek.

The table below shows the additional (as compared to the MS4-2003) monitoring requirements and estimated costs per outfall. The highest cost, for Upper Sagamore Creek, is an additional $278/outfall, giving a total cost per outfall of $348, less than half of Portsmouth's estimate based on the 2008 draft. Assuming Portsmouth's outfalls are distributed in proportion to stream miles, the average additional cost per outfall is approximately $102, or $172 total material and lab cost per outfall.

Table II.B.4

Receiving Water	Stream miles	Monitoring parameter	Additional cost per outfall
BACK CHANNEL	1.3	Lead, Total Nitrogen	$128
BERRY'S BROOK	4.59	DO, BOD5, pH, Total Phosphorus	$55
BORTHWICK AVE BROOK	1.34	Chloride, DO, BOD5, Iron, pH, Total Phosphorus	$190
LOWER HODGSON BROOK	1.34	Chloride, DO, BOD5, pH, Total Phosphorus	$80
LOWER PISCATAQUA RIVER – SOUTH	3.11	Total Nitrogen	$18
LOWER SAGAMORE CREEK	0.93	Total Nitrogen	$18
NEWFIELDS DITCH	1.31	Chloride, pH	$30
NORTH MILL POND	1.23	pH	$5
PICKERING BROOK	5.52	Chloride, DO, BOD5, Iron, pH, Total Phosphorus	$190
SAGAMORE CREEK	0.98	Chloride, pH	$30
SOUTH MILL POND	0.47	pH	$5
UPPER HODGSON BROOK	1.31	Chloride, DO, BOD5, pH, Total Phosphorus	$80
UPPER SAGAMORE CREEK	3.91	Fecal coliform, Metals (scan), PAHs (scan), Total Nitrogen	$278
LOWER GRAFTON BROOK	1.14	N/A	$0
ELWYN BROOK	0.23	N/A	$0
HAINES BROOK	0.58	N/A	$0
UNNAMED BROOKS	1.83	N/A	$0
Total stream miles	31.12	Average cost/outfall	$102

EPA has also reduced the overall monitoring by limiting wet weather monitoring to areas with specific system vulnerability factors and incorporating it into the catchment investigation procedure. This will allow wet weather monitoring to be targeted to problem areas and will spread the cost over the ten year timeline for IDDE completion (40% within the permit term, or 10% per year). This results in a substantial overall cost savings, even with a compressed schedule for dry weather screening and the addition of post-investigation screening. The impact on annual monitoring costs is shown below. The average annual cost of monitoring is reduced from $111,060 under the 2008 draft to $25,125 under the revised Draft Permit, a reduction of over $85,000 per year. (EPA also believes that staff costs will be reduced below four hours per outfall as staff become accustomed to monitoring, further reducing costs, but has incorporated Portsmouth staffing estimate for this calculation).

Table II.B.5

Monitoring cost comparison based on Portsmouth cost estimate

2008 DRAFT		Outfalls sampled		Cost per outfall				
		%	Number	Staff cost	Lab/materials		Total cost	
Year 2-3	Dry-screening	25%	112.5	40	$	-	$	4,500
	Dry-sampling	2.5%	11.3	40	$	712	$	8,460
	Wet-sampling	25%	112.5	160	$	712	$	98,100
Year 4-5	Dry-screening	25%	112.5	40	$	-	$	4,500
	Dry-sampling	2.5%	11.3	40	$	712	$	8,460
	Wet-sampling	25%	112.5	160	$	712	$	98,100
				Average annual cost over permit term:			$	111,060

REVISED DRAFT PERMIT		Outfalls sampled		Cost per outfall				
		%	Number	Staff cost	Lab/materials		Total cost	
Year 2-3	Dry-screening	50%	225	40	$	-	$	9,000
	Dry-sampling	5%	22.5	40	$	172	$	4,770
	Wet-sampling	10%	45	160	$	172	$	14,940
Year 4-5	Dry-screening	8%	34.6	40	$	-	$	1,385
	Dry-sampling	1%	3.5	40	$	172	$	734
	Wet-sampling*	13%	58.5	160	$	172	$	19,422
				Average annual cost over permit term:			$	25,125

* Assumes 90% of system has system vulnerability factors and 30% of IDDE investigations completed at constant pace in years 2 through 5; with 30% of those having confirmation screening in years 4 and 5.

In total, based on Portsmouth's cost tables, these permit changes will reduce the cost to Portsmouth by an average of approximately $185,000, or about 43%, with an estimated average cost of $247,000 per year. This calculated cost for the revised Draft Permit is consistent with the estimate of approximately $250,000/year calculated by EPA for a community with the number of outfalls, catch basins and road miles as Portsmouth.

EPA recognizes that this level of expenditure is significant in a time of pressure on municipal budgets, but also that at an average of less than $12/year per resident it is comparable to charges established as part of successfully stormwater utility fee programs such as that in Reading, MA ($40/year per equivalent residential unit) and Burlington, VT ($54/year per ERU).

C. General Comments on Timing and Timelines

Comment II.C.1 from City of Portsmouth – Many of the deadlines provided in the draft Permit do not allow sufficient time to allocate funding to complete the tasks required. The City's budget process requires months of planning, hearings, and work sessions before final approval by the City Council. The budget process for the City's next fiscal year, beginning July 1, 2009, is already underway with a final vote expected in late May or June. The City requests that no item in the permit be required to be completed during the first Permit Year except the preparation of the Stormwater Management Plan (SWMP).

Comment II.C.2 from City of Dover - Given the budget cycle and the timing of the permit it will be impossible for the communities to insert budget increases at this time to accommodate the proposed year one requirements. My suggestion would be to require the NOI and SW management plan in the first year. Also require that the communities increase the level of catch basin cleaning by 25% over previous years. Complete an IDDE plan for their community if they have not yet done so. Then in year 2 of the permit begin to ask for more so that communities can plan and prepare for increases to their budgets in an orderly manner.

Comment II.C.3 From Town of Seabrook - Many components in the Draft MS4 Permit include timelines that are very aggressive in the context of limited municipal budgets. Unfortunately, as of the date of this writing, Seabrook residents have not endorsed or passed a Municipal Budget since 2007! Seabrook proposes the following timelines for these components:

- Develop illicit discharge responsibilities, methods, verification, and progress protocol (Section 2.3.4.6.c) by end of third Permit year (not the first);
- Walking all stream miles (Section 2.3.4.6.d) by end of the fifth Permit year (not the second);
- Evaluation of street- and parking lot-design guidelines to address impervious area (Section 2.3.6.6) by the end of the fourth Permit year (not the second);
- Complete MS4 catchment area assessment and prioritization and impervious area (Section 2.3.6.8.a) evaluation by the end of the third Permit year (not the first);
- Complete an inventory of Town-owned properties (Section 2.3.7.1) within two years (not six months) of Permit issuance and development of a written Operations and Maintenance plan for these Town-owned properties by the end of the third Permit year (not the first); and.
- Begin outfall monitoring program (Section 3.0) no later than the end of the second Permit year (not the first).

Comment II.C.4 from City of Somersworth - While it is our desire to work with the Agency to implement processes and procedures to clean our waterways and environment I work within a framework of government that has certain limitations. My biggest limitation is time and money. As you are well aware every government agency is under fiscal restraints to hire additional staffing to address the time function. To address this we ask that you re-evaluate the time frames that are listed in the permit so that we can ramp up a little more slowly to all of the permit requirements. This would also allow us to ramp up the funding required over time.

Comment II.C.5 from Town of Hollis - The draft permit establishes a variety of new measurable goals, routine water quality monitoring and site inspection requirements coupled with broadened annual reporting requirements. In order to contain costs and establish a manageable workload

within the terms of the modified federal permit, the Town of Hollis will be compelled to alter its current storm water management strategy which has been generally applied town wide to now instead focus our compliance efforts primarily on the regulated permit area. As a result, the storm water management program will now focus on less than 25% of the Town. . . . I would ask that the Environmental Protection Agency consider not only what it is trying to accomplish, but also how it intends to accomplish its clean water goals by making compliance requirements so burdensome to small towns that they can no longer implement their storm water programs town wide.

Comment II.C.6 from the Seacoast Stormwater Coalition of New Hampshire -

Difficult Timing

The financial impact from the Draft Permit requirements on municipal budgets will be extremely burdensome and the schedule is overly ambitious. The timing is especially difficult in light of the economic situation that communities in New Hampshire and all across the country face today, with calls for zero percent municipal budget increases and tax caps. Municipal budgets are established at least 6 to 8 months prior to the end of each fiscal year, and the costs of complying with just the 1st and 2nd year of the Draft Permit requires preparation and planning on the order of 12 to 18 months to make adequate provisions and be included in the municipal budget process. General compliance with the Draft Permit requirements should be forgiven for at least 2 years and at least 5 years for full compliance.

Unrealistic Deadlines

The requirements for the updated Stormwater Pollution Prevention Plans (SWPPs) are much more involved than the previous permit, and the deadlines to develop and implement them are unrealistic. Due to the extreme complexity of the permit requirements, the timeline for developing SWPPs and fully implementing them should be delayed at least another 2 to 4 years. There needs to be greater flexibility incorporated into the permit's language pertaining to the SWPPs relative to the frequency of catch basin cleaning and monitoring of outfalls that gives consideration to knowledge gained in previous years about what is necessary and cost effective.

> **Response to comments II.C.1 to 6 –** EPA has examined the deadlines in the 2008 draft and has adjusted several of them in response to these and other specific comments addressed above. EPA's overall approach to adjusting the schedules was to provide that only the preparation of the SWMP and its specific components (including water quality response plans, illicit discharge detection and elimination procedures, inventories and operation and maintenance plans) be required in the first year after the permit effective date, while implementation activities begin in the second year. EPA has also lengthened certain time frames in the permit to allow communities additional time to ramp up activities, including IDDE investigations, outfall screening and monitoring. EPA recognizes that the revised deadlines are still aggressive, however, these schedules are appropriate to meet the Clean Water Act's goals and alleviate a leading cause of water quality impairments.
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> With respect to the specific relationship between permit deadlines and funding cycles, EPA notes that tailoring the permit to meet municipal schedules is more difficult in New

Hampshire due to varying fiscal years (July 1 to June 30 for some communities, e.g. Portsmouth; January 1 to December 31 for others). EPA has also concluded that establishing deadlines based on date of authorization by EPA creates unnecessary uncertainty as to timing. Therefore deadlines for completing the SWMP and associated items have been revised to 'one year from permit effective date' so that permittees may plan without the uncertainty as to date of authorization.

With respect to the specific items identified by the City of Dover and Town of Seabrook, revisions have been made to permit deadlines as follows:

- Catch basin cleaning (revised for a performance standard of ≤ 50% full rather than 2 times/year) – program development schedule changed from within six months to within one year;
- IDDE Plan and procedures – one year for most items in connection with SWMP, two years allowed for revised investigation procedure;
- Walking all stream miles - requirement deleted;
- Evaluation of street and parking lot design – unchanged;
- MS4 catchment area assessment and prioritization – unchanged;
- MS4 IA/DCIA – requirement for baseline deleted; change tracking begins with second annual report (unchanged)
- Inventory of Town-owned property – delayed to one year;
- Outfall monitoring – wet weather monitoring deferred to after IDDE investigation and not in all catchments; dry weather monitoring program start delayed from year one to year two, but requires completion by three years from effective date.

D. Other General Comments

Comment II.D.1 from City of Manchester – The EPA needs to clarify sections of the permit. Several requirements are vague and can be interpreted in different ways. Permit compliance will greatly depend on clarity of the regulations. The timelines should also be reviewed as several are too aggressive to meet in a cost effective manner. Lastly, there are requirements in the first year with dates that contradict each other.

Comment II.D.2 from Town of Derry - The draft permit penalizes those permittees that may have gone above and beyond the minimum requirements of the first permit by ignoring these accomplishments and expediting schedules making first and second year tasks more intensive. For instance, there are some requirements under the draft permit that specify certain activities to be conducted by a certain date with additional activities to be conducted within a few months of completion of the activities. Permittees that may have proactively conducted some of these activities under the 2003-MS4GP would now have an expedited schedule for implementing or completing the subsequent activities, increasing the level of resources required during a shorter time period. An unfortunate consequence of this would be that permittees would thus be inclined to do the absolute minimum under the new permit because it would be a disincentive to be proactive.

Response to Comment II.D.1 and 2 – EPA agrees that the permit should not provide a disincentive to be proactive. However, EPA has been unable to locate requirements in the Permit that create an "expedited schedule" for permittees that proactively conducted additional activities under the MS4-2003.

EPA has identified two instances within the 2008 draft where the timing of requirements is adjusted if other activities are completed ahead of schedule. The first is in Part 1.10.3, where new permittees (i.e. those that were not authorized under the MS4-2003) are required to begin their monitoring program within three (3) months of completion of their mapping, if that mapping is completed sooner than three years from effective date. While this provision may provide some disincentive to new permittees that might otherwise complete their mapping early, EPA's goal is to bring these new permittees into the same schedule as previously authorized permittees as quickly as possible. Where newly authorized permittees already possess mapping that meets the requirements, developed for other purposes, EPA does not believe they should not be excused from starting the monitoring required of previously authorized permittees. In any case, this provision does not apply to permittees that conducted activities under the MS4-2003, but only to new permittees.

The second instance is the requirement in Part 2.3.4.6.d that permittees that complete the new IDDE protocol prior to the deadline and begin implementing it within three (3) months of completion. With respect to this requirement, EPA notes that permittees authorized under the MS4-2003 are required by Part 2.3.4.3 to continue the IDDE program required by the MS4-2003 while the new protocol is being developed.

EPA also notes that, as described in Response to Comment 2.3.4.6.d(xi), EPA has revised the IDDE requirements to provide milestones for completion of the program for all MS4 catchments. Early completion of the protocol effects only the date for implementation, and does not in any way effect the milestones for completion of the IDDE program. Thus, permittees who complete the protocol early will simply have a larger window of time in which to meet the new milestones of Part 2.3.4.6.9.

EPA does not believe that these deadline requirements result in expedited schedules or require an increase in the level of resources required during a shorter time period. Indeed with respect to IDDE, early completion provides a longer time period in which to meet permit milestones. Permittees who have completed activities proactively under the MS4-2003 will generally benefit from having done so. For example, EPA is aware that many permittees went beyond the mapping requirements of the MS4-2003 and have maps meeting many if not all of the requirements of the new permit. These permittees will not have the expense of additional mapping during this permit term and are likely to find these prior efforts useful in complying with the reissued permit. EPA has also revised the permit to allow use of sampling conducted under the MS4-2003, so that permittees who proactively conducted sampling of their outfalls may benefit from those efforts.

Comment II.D.3 from Town of Derry -There is significant and excessive overlap of existing regulations that are already overseen and regulated by other agencies or under alternative state and federal programs. The draft permit requires permittees to further administer these programs over the

regulated community by imposing requirements for permittees to become the state's and EPA's enforcement arm where permittees' enforcement ability is limited compared to the state or federal agencies ability.

> **Response to Comment II.D.3** – EPA recognizes that there is some overlap between the requirements under this permit and other regulatory programs. Relationships between this permit and specific regulatory programs are discussed in detail in the Responses to comments 1.10.2(iii) and (iv) (drinking water programs); 2.3.4.2(i) and (ii) (SSO reporting); 2.3.5.e(i) (EPA Construction General Permit). EPA disagrees with the contention that permittees are being required to become the state and EPA's enforcement arms for state and federal programs. The requirements for permittees under this permit are specifically related to the permittees' responsibilities to reduce the discharge of pollutants from their MS4 to the maximum extent practicable, and are not imposing any responsibilities on permittees to implement other regulatory programs.

Comment II.D.4 from Town of Amherst – It was our understanding that through the first permit cycle this was to be a grassroots campaign with town volunteers. This new permit is heavily into the technical side of Stormwater. Is it EPA's intent for this permit to be managed by towns but done by engineering firms?

> **Response to Comment II.D.4** –The requirements of this permit can be met through a combination of resources that varies in each MS4 community, incorporating public works staff, engineers (whether staff or outside consultants), town planners, regional groups, volunteers and other resources as appropriate. EPA does not prescribe the manner in which regulated entities staff their obligations. It is not EPA's expectation, and was not EPA's expectation during the first permit cycle, that all stormwater permit requirements can be met through a grassroots campaign with town volunteers. Clearly some commitment of financial resources will be necessary to address the serious water quality challenges presented by urban stormwater discharges. On the other hand, this permit does not necessarily require the use of engineering firms. While permittees are free to determine their own method for complying with the permit terms, EPA is providing training, guidance documents and other resources intended to assist municipalities in undertaking permit activities using their own staff. See, e.g., Technical Support Documents at http://www.epa.gov/region1/npdes/stormwater/MS4_2013_NH.html. These resources are particularly targeted at assisting communities with permit activities that EPA recognizes fall outside the traditional scope of public works activities, including water quality sampling, review of street design, parking lot and green infrastructure regulations, retrofit analysis, and impervious area assessment. EPA encourages municipalities to take advantage of all of these resources in determining their approach to permit compliance.

Comment II.D.5 from the City of Manchester (Robinson) – Everybody present wants to help protect the environment we just are concerned with some of the costs that is associated with this new permit and having some flexibility.

Comment II.D.6 from Town of Exeter – Feedback on what towns appear to be doing right in regards to the Stormwater Permit.

> **Response to Comment II.D.5 and 6** – EPA acknowledges the sincere commitment to water quality expressed in the comments, as well as the concern for balancing the costs associated with the new permit. With the reissuance of the 2008 draft MS4 permit, EPA has attempted to provide additional flexibility and clarity for permittees when designing their stormwater management programs. EPA is aware that many towns have progressive stormwater management programs and are making strides to protect water quality and while it is outside the scope of this Fact Sheet to review each town's stormwater management program, EPA acknowledges the need to provide additional feedback to towns regarding their stormwater management. With this in mind, EPA plans to release a SWMP template based on permit requirements for the SWMP and on implementation measures currently used by many permittees as well as provide additional tools and feedback on the EPA Region 1 stormwater website throughout the permit term.

Comment II.D.8 from City of Somersworth - The permit lacks any mention of a waiver based on just cause for any of the requirements within the permit. We recommend that the permit include wording that allows for a waiver request to address issues as listed above. For example if a community did one round of sampling and found that certain test parameters were at or below the water entering their community they have a method of requesting a waiver for further testing.

> **Response to Comment II.E.9 -** The comment is correct that the permit does not provide for waivers from particular requirements for "just cause." In the context of the Phase II MS4 regulations, a "waiver" from requirements is limited to the specific circumstances set forth in 40 CFR § 122.32 for MS4s serving populations in the urbanized area of less than 1,000 (§ 122.32(d)) or less than 10,000 (§ 122.32(e)) that meet specific receiving water quality related requirements.
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> Even if not termed a "waiver," EPA believes that providing a general method for requesting a modification to specific individual requirements is inconsistent with the concept of a General Permit and is unworkable with respect to this specific permit. The intent of using the General Permit model is to reduce the administrative burden on permitting authorities as well as allow permittees to avoid the paperwork burden associated with submitting individual applications. General Permits are not intended to provide permittees with an opportunity to pick and choose which permit provisions they would like to be specifically tailored to their situation, thus requiring permitting authorities to respond to multitudinous individual requests for modification. Permittees seeking individualized treatment may apply for an individual permit. See 40 CFR § 122.33(b)(2); Permit Part 1.8.
>
> EPA has, however, attempted to include within the Permit wording that allows permittees to meet requirements in alternative ways where EPA has identified reasonable justifications for doing so. With respect to the sampling issue raised in the comment, for example, EPA has included in the revised Draft Permit a provision that permittees may meet their sampling requirements using prior sampling conducted under the MS4-2003, as well as sampling done

by NHDES or by watershed groups under approved QAAPs. See Response to Comment 3.1.

ATTACHMENT 1

FACT SHEET FOR THE SMALL MS4 DRAFT GENERAL PERMIT

FACT SHEET AND SUPPLEMENTAL INFORMATION

I. INTRODUCTION AND PROGRAM BACKGROUND

The Director of the Office of Ecosystem Protection, EPA-Region 1, is proposing to reissue six National Pollutant Discharge Elimination System (NPDES) general permits for the discharge of

stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) to waters within the States of New Hampshire and Vermont (federal facilities only) and Indian lands within the states of Connecticut and Rhode Island. The draft general permit consists of the following parts:

Part 1: Coverage under this Permit

Part 2: Non-Numeric Effluent Limitations

Part 3: Outfall Monitoring Requirements

Part 4: Additional State Requirements

Part 5: Program Evaluation, Record Keeping and Reporting

Part 6: Requirements for State or Tribal MS4 Non-Traditionals

Part 7: Requirements for Transportation Agencies

Appendices:

A: Definitions and permit specific terms

B: Standard permit conditions applicable to all permits (40 CFR § 122.41)

C: Conditions related to the Endangered Species Act (ESA)

D: Conditions related to the National Historic Preservation Act (NHPA)

E: Information required on the Notice of Intent (NOI)

F: Requirements for NH Small MS4s subject to Approved Total Maximum Daily Loads (TMDLs)

A. Program Background

The conditions in the draft permit are established pursuant to Clean Water Act (CWA) § 402(p)(3)(iii) to ensure that pollutant discharges from small municipal separate storm sewer systems (MS4s) are reduced to the maximum extent practicable (MEP), protect water quality, and satisfy the appropriate water quality requirements of the CWA. A small municipal separate storm sewer system means all separate storm sewers that are:

> "(1) Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes including special districts under State law such as a sewer , flood control district or drainage district, or similar entity or an Indian tribe or an authorized Indian tribal organization, or a designated

and approved management agency under section 208 of the CWA that discharges to waters of United States.

(2) Not defined as "large" or "medium" municipal separate storm sewer systems pursuant to 40 CFR § 122.26(b)(4) or (b)(7) or designated under 40 CFR § 122.26(a)(1)(v).

(3) This term includes systems similar to separate storm sewer systems in municipalities such as military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings. For example, an armory located in an urbanized area would not be considered a regulated small MS4." (See 40 CFR § 122.26(b) (16)).

Part 2.3 of the draft permit sets forth the requirements for the MS4 to "reduce pollutants in discharges to the maximum extent practicable, including management practices, control techniques, and system, design and engineering methods…" (See Section 402(p) (3) (B) (iii) of the CWA). MEP is the statutory standard that establishes the level of pollutant reductions that MS4 operators must achieve. EPA believes implementation of best management practices (BMPs) designed to control storm water runoff from the MS4 is generally the most appropriate approach for reducing pollutants to satisfy the technology standard of MEP. Pursuant to 40 CFR § 122.44(k), the draft permit contains BMPs, including development and implementation of a comprehensive stormwater management program (SWMP) as the mechanism to achieved the required pollutant reductions.

Section 402(p) (3) (B) (iii) of the CWA also authorizes EPA to include in an MS4 permit "such other provisions as [EPA] determines appropriate for control of …pollutants." EPA believes that this provision forms a basis for imposing water quality-based effluent limitations (WQBELs), consistent with the authority in Section 301(b) (1) (C) of the CWA. *See Defenders of Wildlife v. Browner.* 191 F.3d 1159 (9th Cir. 1999): *see also* EPA's preamble to the Phase II regulations, 64 Fed. Reg. 68722, 68753, 68788 (Dec 8, 1999). Accordingly, Part 2.1 of the draft permit contains the water quality-based effluent limitations, expressed in terms of BMPs, which EPA has determined are necessary and appropriate under the CWA.

EPA – Region 1 issued a final general permit to address stormwater discharges from small

MS4s on May 1, 2003. The MS4-2003 general permit required small MS4s to develop and implement stormwater management programs (SWMP) designed to control pollutants to the maximum extent practicable (MEP) and protect water quality. This draft general permit builds on the requirements of the previous general permit.

Neither the CWA nor the stormwater regulations provide a precise definition of MEP. The lack of a precise definition is to allow maximum flexibility in MS4 permitting. Small MS4s need flexibility to optimize reductions in stormwater pollutant loads on a location-by-location basis. The process of optimization will include consideration of factors such as receiving waters, specific local concerns, size of the MS4, climate, and other aspects. Pollutant reductions that represent MEP may be different for each small MS4 given the unique hydrologic and geologic concerns or features that may exist.

EPA views the MEP standard in the CWA as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness. EPA believes that compliance with the requirements of this draft permit will meet the MEP standard. The iterative process of MEP consists of a municipality developing a program consistent with specific permit requirements, implementing the program, evaluating the effectiveness of BMPs included as part of the program, then revising those parts of the program that are not effective at controlling pollutants, then implementing the revisions, and evaluating again. This process continues until the goal of meeting water quality requirements is achieved. The changes contained in the draft general permit reflect the iterative process of MEP. Accordingly, the draft general permit contains more specific tasks and details than the 2003 general permit. These specific changes are discussed later in the fact sheet.

B. Consideration of Other Federal Programs

When EPA undertakes an action, such as the reissuance of an NPDES permit, that action must be consistent with other federal laws and regulations. Regulations at 40 C.F.R. §122.49 contain a listing of Federal laws that may apply to the issuance of NPDES permits. This section discusses four federal Acts that apply to the reissuance of these general permits: the Endangered Species

Act (ESA), the National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat), and the Coastal Zone Management Act. The requirements of these Acts and EPA's obligations with regard to them are discussed in the following paragraphs. Executive Orders and other administrative laws that may apply to the issuance of NPDES are discussed in Part IV of this fact sheet.

Endangered Species

The Endangered Species Act (ESA) of 1973 requires federal agencies, such as EPA to ensure in consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (also known collectively as the Services), that any actions authorized, funded or carried out by the Agency are not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species (see 16 U.S.C 1536(a)(2), 50 CFR 402 and 40 CFR 122.49(c)).

In order to be eligible for this draft general permit, permittees must certify that none of their stormwater discharges, allowable non-stormwater discharges, or discharge related activities are likely to affect a threatened or endangered species. The draft general permit contains five criteria for eligibility certification. These criteria are contained in Appendix C of the draft general permit. The permittee must document its eligibility determination based on one of the criteria and maintain it as part of the stormwater management program. The permittee must also certify eligibility as part of the Notice of Intent requirements.

In order to meet its obligations under the CWA and the ESA, and to promote the goals of those Acts, EPA seeks to ensure the activities regulated by these general permits are not likely to adversely affect endangered and threatened species and critical habitat. Small MS4s applying for permit coverage must assess the impacts of their storm water discharges and discharge-related activities on Federally listed endangered and threatened species ("listed species") and designated critical habitat ("critical habitat") to ensure that the goals of ESA are met. Prior to obtaining general permit coverage, small MS4s must meet the ESA eligibility provisions of this permit.

EPA strongly recommends that small MS4s follow the guidance in Appendix C of the general permit at the earliest possible stage to ensure eligibility requirements for general permit coverage are complete upon NOI submission.

Small MS4s also have an independent ESA obligation to ensure that their activities do not result in any prohibited "takes" of listed species[1]. Many of the measures required in this general permit and in the instructions of Appendix C to protect species may also assist in ensuring that the MS4's activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the permittee has plans or activities in an area where endangered and threatened species are located, it may wish to ensure that they are protected from potential takings liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Small MS4s that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS)[2] office or the National Marine Fisheries Service (NMFS).

There are four species of concern for small MS4s applying for permit coverage, namely the dwarf wedgemussel, the shortnose sturgeon, the bog turtle, and the northern redbelly cooter. The shortnose sturgeon is listed under the jurisdiction of NMFS and the dwarf wedge mussel, the bog turtle and the northern belly cooter are listed under the jurisdiction of the USFWS.

The Federally-listed endangered dwarf wedgemussel (*Alasmidonta heterodon*) is found in the following areas in New Hampshire:

- Connecticut River from North Cumberland to Dalton, New Hampshire (Coos County
- Connecticut River from Lebanon to North Walpole, New Hampshire (Grafton and Sullivan Counties)

[1] Section 9 of the ESA prohibits any person from "taking" a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an "incidental take statement" as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan; or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.

[2] Discharges to marine waters may require consultation with the National Marine Fisheries Service instead.

- Ashuelot River from the Surry Mountain Flood Control Project in Surry to Swanzey, New Hampshire (Cheshire County)
- South Branch of the Ashuelot River in East Swanzey, New Hampshire (Cheshire County)
- Mill River from Whately to Hatfield, Massachusetts (Hampshire County)
- Fort River in Amherst, Massachusetts (Hampshire County)
- Mill River south of State Route 10 in Northampton, Massachusetts (Hampshire County)

Any small MS4 seeking coverage under this general permit, which discharges to these rivers, must consult with the Services. EPA is authorized to designate non-Federal representatives for the general permit for the purpose of carrying out informal consultation with NMFS and USFWS (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated small MS4 operators as non-Federal representatives for the purpose of conducting informal consultations. Permit coverage is only available if the small MS4 contacts the Services to determine that discharges and discharge related activities are not likely to adversely affect listed species or critical habitat and informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is not likely to adversely affect an endangered or threatened species.

Before submitting a NOI for coverage by this permit, a small MS4 must determine whether they meet the ESA eligibility criteria by following the steps in Section D of Appendix C. Small MS4s that cannot meet any of the eligibility criteria must apply for an individual permit.

The paragraphs below are the ESA eligibility criteria contained in Appendix C of the permit. A MS4 must meet one of the criteria to be eligible for this permit.

The ESA eligibility requirements of this permit may be satisfied by documenting that one or more of the following criteria has been met. Upon notification, EPA may direct an applicant to pursue eligibility under Criterion B.

Criterion A: No endangered or threatened species or critical habitat is in proximity to the storm water discharges or discharge related activities.

Criterion B: In the course of a separate federal action involving the small MS4, formal or informal consultation with the Fish and Wildlife Service and/or the National Marine Fisheries Service under Section 7 of the ESA has been concluded and that consultation (1) addressed the effects of the storm water discharges and discharge related activities on the listed species and critical habitat; and (2) the consultation resulted in either a no jeopardy opinion or a written concurrence by USFWS and/or NMFS on a finding that the storm water discharges and discharge related activities are not likely to adversely affect listed species or critical habitat.

Criterion C: The activities are authorized under Section 10 of the ESA and that authorization addresses the effects of the storm water discharges and discharge related activities on listed species and critical habitat.

(Eligibility under this criterion is not likely.) This criterion involves a municipality's activities being authorized through the issuance of a permit under section 10 of the ESA and that authorization addresses the effect of the municipality's storm water discharges and discharge related activities on listed species and designated critical habitat. Municipalities must follow USFWS and/or NMFS procedures when applying for an ESA section 10 permit (see 50 CFR §17.22(b) (1) for USFWS and §222.22 for NMFS). Application instructions for section 10 permits can be obtained by assessing the appropriate websites (www.fws.gov and www.nmfs.noaa.gov) or by contacting the appropriate regional office.

Criterion D: Using the best scientific and commercial data available, the effect of the storm water discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations a determination is made by the permittee and affirmed by EPA that the storm water discharges and discharge related activities are not likely to adversely affect any federally threatened or endangered listed species or designated critical habitat.

Criterion E: The storm water discharges and discharge related activities were already addressed in another operator's certification of eligibility which includes the small MS4's stormwater discharges and discharge related activities.

Criterion F: Eligibility under this criterion is restricted to a small MS4 which discharges to an area listed aboveA with federally listed species.

Section 7 of the ESA provides for formal and informal consultation with the Services. For NPDES permits issued by EPA, draft permits and fact sheets are routinely submitted to the Services for informal consultation prior to issuance. EPA will initiate an informal consultation with the Services during the public notice period of the general permit.

This general permit authorizes stormwater discharges from municipal separate storm sewer systems which consists of runoff from precipitation events that is collected from streets, parking lots, sidewalks and other impervious areas and discharged to a surface water. Stormwater from small MS4smay contain bacteria, nutrients, and heavy metals. The general permit excludes coverage to small MS4s whose discharges are likely to adversely affect any species that is listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. The proposed permit requirements are sufficiently stringent to assure protection of aquatic life. The requirements in this permit are consistent with information previously provided by the Services to EPA during the development of other recently issued general permits.

Small MS4 discharges that are located in areas in which listed endangered or threatened species may be present are not automatically covered under this general permit. Small MS4s discharging into areas where these species are found must ensure and document eligibility. Small MS4s unable to document eligibility must apply for an individual permit. Applicants with discharges to those locations must contact the Services to determine whether additional consultation with the Services is needed.

Coverage under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criterion listed above and in Appendix C of the general permit.

EPA has requested concurrence from the Services that the draft general permit is protective.

Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)(16 USC Sections 1801 et seq. (1998)), EPA is required to consult with NMFS if EPA's action or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat." (16 USC Section 1855(b)). The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." (16 USC Section 1802(10)). Adverse impact means any impact that reduces the quality and/or quantity of an EFH (50 CFR Section 600.910(a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

An EFH is only designated for fish species for which federal Fisheries Management Plans exist. 16 USC Section 1855(b) (1) (A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. In a letter dated October 10, 2000 to EPA, NOAA Fisheries Service agreed that for projects authorized through the NPDES permit process, EPA may use its existing procedures regarding consultation/ environmental review to satisfy the requirements of the MSFCMA. According to the agreement between NOAA/NMFS and EPA, EFH notification for purposes of consultation can be accomplished in the EFH Section of the fact sheet for the draft permit or Federal Register notice.

EPA's EFH assessment must contain the following information: description of the proposed action; an analysis of individual and cumulative effects of the action on EFH, the managed species, and associated species (such as major prey species), including all affected life history

stages; EPA's determination regarding effects on EFH and a discussion of proposed mitigation, if applicable. The following section details EPA's EFH assessment.

Proposed Action: EPA is proposing to reissue the NPDES general permit for the discharge of stormwater from Small Municipal Separate Storm Sewer Systems located in the areas described in Part 1.1 of the draft general permit.

Resources: The draft general permit lists specific discharges excluded from coverage (see Part 1.3 of the permit) including discharges whose directed or indirect impacts do not prevent or minimize adverse effects on any Essential Fish Habitat. EPA's EFH assessment considers all 40 federally managed species with designated EFH in the coastal and inland waters of Massachusetts and New Hampshire.

Analysis of Effects and EPA's Opinion of Potential Impacts: Discharges from small MS4s contain stormwater runoff from urban environments including areas such as rooftops, driveways, sidewalks, and roads. Typical pollutants in urban stormwater runoff include sediments, nutrients, bacteria and oil & grease. EPA expects that EFH will be protected. The following permit conditions are designed to ensure protection of EFH:

- MS4s are required to implement SWMPs designed to reduce pollutants to the maximum extent practicable and protect water quality. Implementation of a program to these standards should ensure the protection of aquatic life and maintenance of the receiving water as an aquatic habitat. Implementation of the SWMP includes, among other things, a public education program, a program to remove non-stormwater from the system, and an operations and maintenance program for municipal operations. Details of the program are in Part 2.3 of the draft permit and discussed in Part II.E of this fact sheet.
- The effluent limitations of the draft permit are sufficiently stringent to assure that state water quality standards will be met and it also prohibits violations of these standards.
- The draft permit excludes coverage of discharges that do not prevent or minimize adverse effects to EFH.

EPA concludes that adherence to the terms and conditions of the permit will prevent or minimize

adverse effects to EFH species, their habitat and forage. EPA will seek written concurrence from the National Marine Fisheries Service on this assessment.

Proposed Mitigation: Mitigation for unavoidable impacts associated with issuance of the draft permit is not warranted at this time because it is EPA's opinion that impacts will be negligible if permit conditions are followed. Authorization to discharge under the general permit can be revoked if any adverse impacts to federally managed or protected species or their habitats do occur either because of noncompliance or from unanticipated effects from this activity. Should new information become available that changes the basis for EPA's assessment, then consultation with NMFS under the appropriate statute(s) will be reinitiated.

Historic Preservation

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of Federal "undertakings" on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term Federal "undertaking" is defined in the NHPA regulations to include a project, activity, or program of a Federal agency including those carried out by or on behalf of a Federal agency, those carried out with Federal financial assistance, and those requiring a Federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA's reissuance of the Small MS4 General Permit is a Federal undertaking within the meaning of the NHPA regulations. To address any issues relating to historic properties in connection with reissuance of the general permit, EPA has included eligibility criteria, see Appendix D of the draft permit, for permittees to certify that potential impacts of their activities covered by this permit on historic properties have been appropriately considered and addressed. Although individual NOIs for coverage under the general permit do not constitute separate Federal undertakings, the screening criteria and certifications provide an appropriate site-specific means

of addressing historic property issues in connection with EPA's reissuance of the general permit. MS4s seeking coverage under this general permit are thus required to make certain certifications regarding the potential effects of their stormwater discharge, allowable non-stormwater discharge, and discharge-related activities on properties listed or eligible for listing on the National Register of Historic Places.

A permittee must meet one or more of the following four criteria (A-D) to be eligible for coverage under this permit:

Criterion A. Stormwater discharges and allowable non-stormwater discharges do not have the potential to have an effect on historic properties and the permittee is not constructing or installing stormwater control measures that cause less than 1 acre of subsurface disturbance; or

Criterion B. Discharge-related activities (i.e., construction and/or installation of stormwater control measures that involve subsurface disturbance) do not have the potential affect historic properties; or

Criterion C. Stormwater discharges, allowable non-stormwater discharges, and discharge-related activities have the potential to have an effect on historic properties, and the permittee has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other tribal representative that outlines all measures the permittee will carry out to mitigate or prevent any adverse effects on historic properties; or

Criterion D. The permittee has contacted the State Historic Preservation Officer, Tribal Historic Preservation Officer, or other tribal representative and EPA in writing informing them that the permittee has the potential to have an effect on historic properties and the permittee did not receive a response from the SHPO, THPO, or tribal representative within 30 days of receiving the permittee's letter.

Coverage under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above and in Appendix D of the

general permit. Permittees are reminded that they must comply with applicable State, Tribal, and local laws concerning protection of historic properties and include documentation supporting the determination of permit eligibility in the Stormwater Management Program.

Electronic listings of National and State Registers of Historic Places are maintained by the National Park Service - http://www.nps.gov/nr/ and the New Hampshire Historic Commission - www.state.nh.us/nhdhr.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), l6 U.S.C. Sections l45l et seq., and its implementing regulations [15 CFR Part 930] require that any federally licensed activity affecting a state's coastal zone be consistent with the enforceable policies of approved state management programs. In the case of general permits, EPA has the responsibility for making the consistency determination and submitting it to the State for concurrence.

The following is a listing of NH Coastal Zone Management Enforceable Policies. EPA has addressed policies identified as applicable by NH CZM to the issuance of this permit. Policies that were not applicable to EPA's action (reissuance of this permit) are noted with "NA".

PROTECTION OF COASTAL RESOURCES

1. Protect and preserve and, where appropriate, restore the water and related land resources of the coastal and estuarine environments. The resources of primary concern are coastal and estuarine waters, tidal and freshwater, wetlands, beaches, sand dunes, and rocky shores.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standards and by requiring the development and implementation of a SWMP. The draft

permit requires MS4s to meet water quality –based limitations described in Part 2.2 of the draft permit. The SWMP consists of control measures described in Part 2.3 of the draft permit. These requirements when implemented are designed to protect the waters of the coastal and estuarine environments and related land resources.

2. Manage, conserve and where appropriate, undertake measures to maintain, restore, and enhance the fish and wildlife resources of the state.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standards and by requiring the development and implementation of a SWMP. The draft permit requires MS4s to meet water quality –based effluent limitations described in Part 2.2 of the draft permit. The SWMP consists of non-numeric effluent limitations (control measures) described in Part 2.3 of the draft permit. These requirements when implemented are designed to protect the waters of the coastal and estuarine environments and to maintain and conserve fish and wildlife resources.

3. Regulate the mining of sand and gravel resources in offshore and onshore locations so as to ensure protection of submerged lands, and marine and estuarine life. Ensure adherence to minimum standards for restoring natural resources impacted from onshore sand and gravel operations. - NA

4. Undertake oil spill prevention measures, safe oil handling procedures and when necessary, expedite the clean up of oil spillage that will contaminate public waters. Institute legal action to collect damages from liable parties in accordance with state law.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by requiring the development of a stormwater pollution prevention plan (SWPPP) for permittee-owned facilities. The permit includes a requirement to develop spill

prevention and response practices and implementation of controls, including storage practices, to minimize exposure of materials to stormwater.

5. Encourage investigations of the distribution, habitat needs, and limiting factors or rare and endangered animal species and undertake conservation programs to ensure their continued perpetuation.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by allowing coverage under this permit only if the stormwater discharges, allowable non-stormwater discharges, and stormwater discharge related activities (see Appendix C of the draft permit) are not likely to adversely affect the continued existence of any species that are federally-listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat that is federally-designated as critical under ESA. MS4s must determine eligibility prior to submission of a Notice of Intent for coverage. The MS4 permit provides criteria for eligibility (see Appendix C of the permit). The MS4 must maintain eligibility for the entire permit term.

6. Identify, designate, and preserve unique and rare plant and animal species and geologic formations which constitute the natural heritage of the state. Encourage measures, including acquisition strategies, to ensure their protection.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by allowing coverage under this permit only if the stormwater discharges, allowable non-stormwater discharges, and stormwater discharge related activities (see Appendix C of the draft permit) are not likely to adversely affect the continued existence of any species that are federally-listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat that is federally-designated as critical under ESA. MS4s must determine eligibility prior to submission of a Notice of Intent for coverage. The MS4 permit provides criteria for eligibility (see Appendix C of the permit). The MS4 must maintain eligibility for the entire permit term. In addition the permittee must also be

consistent with applicable state regulations including those designed to be protective of state species.

RECREATION AND PUBLIC ACCESS

7. Provide a wide range of outdoor recreational opportunities including public access in the seacoast through the maintenance and improvement of the existing public facilities and the acquisition and development of new recreational areas and public access. - NA

MANAGING COASTAL DEVELOPMENT

8. Preserve the rural character and scenic beauty of the Great Bay estuary by limiting public investment in infrastructure within the coastal zone in order to limit development to a mixture of low and moderate density. - NA

9. Reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to preserve the natural and beneficial value of floodplains, through the implementation of the National Flood Insurance Program and applicable state laws and regulations, and local building codes and zoning ordinances.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by requiring the SWMP to include measures designed to encourage the hydrology associated with new development to mirror the pre-development hydrology of a previous undeveloped site or to improve the hydrology of a redeveloped site and reduce the discharge of stormwater. The small MS4 general permit includes a provision for the permittee to have procedures to ensure that any new development or redevelopment stormwater controls or management practices will prevent or minimize impacts to water quality including flood control.

10. Maintain the air resources in the coastal area by ensuring that the ambient air pollution level, established by the New Hampshire State Implementation Plan pursuant to the Clean Air Act, as amended, is not exceeded. - NA

11. Protect and preserve the chemical, physical, and biological integrity of coastal water resources, both surface and groundwater.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standards and by requiring a SWMP consisting of control measures described in Part 2.3 of the permit including a requirement to develop of a maintenance plans and SWPPPs for permittee-owned facilities and activities (see Part 2.3.7 of the permit). These requirements are designed to protect the waters of the coastal and estuarine environment. Discharges to groundwater are not a part of the NPDES program. Nothing in the permit authorizes an activity that will result in a negative impact to groundwater.

12. Ensure that the siting of any proposed energy facility in the coast will consider the national interest and will not unduly interfere with the orderly development of the region and will not have an unreasonable adverse impact on aesthetics, historic sites, coastal and estuarine waters, air and water quality, the natural environment and the public health and safety. - NA

COASTAL DEPENDENT USES

13. Allow only water dependent uses and structures on state properties in Portsmouth-Little Harbor, Rye Harbor, and Hampton-Seabrook Harbor, at state port and fish pier facilities and state beaches (except those uses or structures which directly support the public recreation purpose). For new development, allow only water dependent uses and structures over waters and wetlands of the state. Allow repair of existing over-water

structures within guidelines. Encourage the siting of water dependent uses adjacent to public waters. - NA

14. Preserve and protect coastal and tidal waters and fish and wildlife resources from adverse effects of dredging and dredge disposal, while ensuring the availability of navigable waters to coastal-dependent uses. Encourage beach renourishment and wildlife habitat restoration as a means of dredge disposal whenever compatible. - NA

PRESERVATION OF HISTORIC AND CULTURAL RESOURCES

15. Support the preservation, management, and interpretation of historic and culturally significant structures, sites and districts along the Atlantic coast and in the Great Bay area.

The Small MS4 general permit is consistent to the maximum extent practicable with this enforceable policy by requiring that prior to submission of a Notice of Intent, the permittee must certify eligibility with regard to protection of historic properties and places (see Appendix D of the permit).

MARINE AND ESTUARINE RESEARCH AND EDUCATION

16. Promote and support marine and estuarine research and education that will directly benefit coastal resource management. - NA

EPA has requested the New Hampshire Coastal Program to review and to concur with EPA's consistency determination for the proposed general draft permit.

Each State's coastal program office has the responsibility to confirm to EPA that the draft general permit is consistent with its coastal zone management program.

C. General Permit Authority

Section 301(a) of the Act, 33 U.S.C. § 1311(a), prohibits the discharge of pollutants into waters

of the United States, except in compliance with certain sections of the Act including , among others, Section 402 of the Act, 33 U.S.C. § 1342. Section 402 of the Act provides the Administrator of EPA may issue NPDES permits for discharges of any pollutant into waters of the United States according to such specific terms and conditions as the Administrator may require. Although such permits are generally issued to individual discharges, EPA's regulations authorize the issuance of "general permits" to cover one or more categories or subcategories of discharges , including stormwater point source discharges, within a geographic area (see 40 CFR §122.28(a)(1) and (2)(i)). EPA issues general permits under the same CWA authority as individual permits. Violations of a general permit condition constitute a violation of the CWA and may subject the discharger to the enforcement remedies provided in Section 309 of the Act, including injunctive relief and penalties.

D. Notice of Intent (NOI) Requirements

Before a small MS4 can be authorized to discharge stormwater under a general permit, it must submit a written notice of intent (NOI). The specific contents of the NOI are included in Appendix E of the draft general permit.

The regulations at 40 CFR §122.33 require small MS4s who apply for a general permit to submit information on BMPs and measurable goals designed to meet the minimum control measures required by 40 CFR 122.34(d). The NOI requirements of this draft general permit are slightly different than the NOI for the 2003 permit. The initial NOI for the 2003 permit required the small MS4 to submit information on the BMPs for the Storm Water Management (SWMP) it planned to develop over the five-year permit term. The NOI requirements of this draft permit are based on the presumption that the programs outlined in the 2003 NOI are now developed and are being implemented and the NOI requirements build on those of the previous permit.

All NOIs must be submitted to EPA-Region 1 by **90 days from the effective date of the permit.** MS4s in New Hampshire must also submit a NOI to the New Hampshire Department of Environmental Services by **90 days from the effective date of the permit**.

EPA will place all NOIs on public notice for a minimum of 30 days. NOIs will be posted on the Region 1 Stormwater website: http://www.epa.gov/region1/npdes/stormwater/index.html. During that time, EPA will accept comment from the public concerning the content of the NOI. Following the close of the comment period, EPA will either authorize the discharges or require additional information. The draft general permit states that a small MS4 is not authorized to discharge until receipt of written authorization from EPA. The draft permit also states that a small MS4 remains covered under the previous MS4 2003 permit and will remain covered for a period of 180 days or until granted authorization under the new permit whichever comes first. EPA may also deny coverage under the general permit and require an MS4 to obtain coverage under an alternative general permit or an individual permit.

II. BASIS FOR CONDITIONS OF THE DRAFT NPDES GENERAL PERMIT

A. Statutory Requirements

Section 301(a) of the Act, 33 USC 1311(a), makes it unlawful to discharge pollutants to waters of the United States without a permit. Section 402 of the Act, 33 USC 1342, authorizes EPA to issue NPDES permits allowing discharges that will meet certain specified requirements. Section 402(p) (3) (B) (ii) and (iii) of the CWA , and implementing regulations in 40 CFR §§ 122.26 and 122.34, require NPDES permits for stormwater discharges from MS4s to effectively prohibit non-stormwater discharges into the sewer system; and to require controls to reduce pollutant discharges to the maximum extent practicable including BMPs and other provisions as EPA determines to be appropriate for the control of such pollutants. EPA interprets this latter clause to authorize the imposition of water quality based effluent limitations.

B. Coverage Under the Permit

This permit is actually six (6) separate general permits. Each general permit is applicable to either a particular area or particular entities within a geographic area. Many of the permit terms and conditions are identical across all six permits, and therefore are presented just once in Parts 1 through 3, Part 5 and Appendices A through E. Other conditions are specific to a particular

covered geographic area or particular covered entity; these terms and conditions are included in Parts 4, 6 and 7 and Appendix F

These draft general permits cover stormwater discharges from small municipal separate storm sewer systems meeting the definition of "small municipal separate storm sewer system" at 40 CFR § 122.26(b) (16) and designated under 40 CFR § 122.32(a) (1) (applicable to small MS4s located in an urbanized area) or designated by EPA as needing a permit pursuant to 40 CFR §122.32(a) (2).

Most small MS4s that will be covered by this permit are located entirely within an urbanized area as defined by the Bureau of the Census. On March 15, 2002, the Census Bureau published final the criteria used to define urbanized areas for the 2000 census. An urban area encompasses a densely settled territory that consists of core census block groups or blocks that have a population of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile. Urbanized areas are not divided along political boundaries. Because of this non-political division, a community may be entirely in an urbanized area or partially in an urbanized area. The Phase II regulations require a small MS4 to implement its program in the urbanized area. If a small MS4 is only partially within the urbanized area, the MS4 may decide to implement the SWMP within its entire jurisdiction, or just in the urbanized area. Both approaches are acceptable under EPA's regulations. However, EPA encourages MS4s to implement the SWMP in the entire jurisdiction.

In addition to urbanized areas within the State of New Hampshire, this permit also covers Indian lands in the States of Connecticut and Rhode Island, and federal facilities in the State of Vermont. EPA is aware of one federal facility in Vermont that is located in an urbanized area and owns a separate storm sewer system that could potentially be subject to this permit. In a letter dated March 22, 2004, EPA granted a waiver to this facility based on the regulations at 40 CFR §122.32(c). Thus this permit is being issued to cover federal facilities in Vermont in the event (1) there are other federal facilities in urbanized areas or (2) EPA decides to regulate stormwater discharges from a federal facility not located in an urbanized area to protect or

remedy local water quality impacts.

Data from the Census Bureau indicate that the Indian lands within both Connecticut and Rhode Island are not located in urbanized areas. The Tribes are therefore not automatically required to obtain permit coverage. However, if new information becomes available to EPA that indicates that an MS4 located on Indian land requires a permit to protect or remedy local water quality impacts, this permit would be available to the MS4 provided it meets the eligibility requirements.

As stated previously, the draft permit applies to small MS4s located in urbanized area and those determined by EPA to need a permit. EPA has authority under the CWA to regulate sources other than those that are automatically covered by the stormwater regulations when necessary to protect or remedy localized water quality impacts. These could be small MS4s not in an urbanized area, including MS4s owned by the state, a tribe, or the federal government. If EPA decides to regulate additional sources, EPA will evaluate whether a stormwater discharge results in or has the potential to result in exceedances of water quality standards, including impairments of designated uses, impacts to habitats, or biological impacts. Consistent with guidance found at 40 C.F.R §123.35 (b) (1) (ii), EPA will make a determination concerning water quality impacts from a non-regulated small MS4 using a balanced consideration of the sensitivity of a watershed, the growth potential of an area, the population density, the contiguity to an urbanized area, and the effectiveness of protection of water quality by other programs. If EPA decides to designate additional MS4s, EPA will provide public notice and an opportunity to comment on the designation..

Limitations on Permit Coverage

This draft permit does not authorize the following stormwater discharges:

a. Discharges that are mixed with sources of non-stormwater unless the non-stormwater discharges are in compliance with a separate individual or other general NPDES permit. The draft permit requires illicit (non-stormwater) discharges to be prevented and eliminated except for the categories of non-stormwater discharges listed in 40 CFR

§122.34(b)(3) and identified in Part 1.4 of the draft permit. These categories need not be addressed unless they are determined to be significant contributors of pollutants to the MS4.

b. Discharges that are subject to other permits. This includes industrial stormwater discharges described at 40 CFR § 122.26(b) (14) (i)-(ix) and (xi); stormwater discharges related to construction described in either 40 CFR § 122.26(b) (14) (x) or 40 CFR § 122.26(b) (15); or discharges subject to an individual permit or alternative general permit for stormwater.

c. Discharges, or discharge related activities that are likely to adversely affect any species that are listed as threatened or endangered under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. The permittee must follow the procedures detailed in Appendix C of the permit to make a determination regarding permit eligibility. A more detailed discussion of the Endangered Species Act and EPA's obligation under that Act are contained in another section of this fact sheet.

d. Discharges whose direct or indirect impacts do not prevent or minimize any adverse effects on any Essential Fish Habitat (EFH). This topic is addressed in another section of this fact sheet.

e. Discharges or implementation of a stormwater management program that would adversely affect properties listed or eligible to be listed on the National Register of Historic Places. The permittee must follow the procedures in Appendix D of the permit to make a determination regarding eligibility. This topic is addressed in another section of the fact sheet.

f. Discharges to territorial seas, the contiguous zone and the oceans.

g. Discharges that are prohibited under 40 CFR § 122.4.

h. Discharges subject to state ground water discharge and Underground Injection (UIC) regulations. Although the permit includes provision related to stormwater infiltration and groundwater recharge, structural controls that dispose of stormwater into the ground may be subject to UIC regulation requirements. Authorization for such discharges must be obtained from the relevant authority depending on the location of the discharge. (New

Hampshire: New Hampshire Department of Environmental Services, Groundwater

i. Discharge Permitting and Registration Program; Indian Lands –CT and RI: EPA Region 1, Drinking Water Program, Underground Injection Control; and Vermont Federal Facilities: Vermont Department of Environmental Conservation, Wastewater Management Division, Underground Injection Program).

j. Discharges that cause or contribute to an instream exceedance of a water quality standard, including jeopardizing public and private drinking water sources.

Non-Stormwater Discharges

The draft permit lists sources of non-stormwater discharges described in 40 CFR § 122.26(b) (3) (iii). The permittee must control or prohibit these sources of non-stormwater as part of its illicit discharge detection and elimination (IDDE) program if the permittee determines that these sources are significant contributors of pollutants to the system. The draft permit does not require any action regarding these discharges if the permittee determines that these sources are not significant contributors of pollutants to the MS4. The permittee must document its determinations in its SWMP and must prohibit any sources identified as a significant contributor. In accordance with 40 CFR § 122.34(b)(3)(iii), discharges or flows from fire fighting activities are excluded from the effective prohibition against non-stormwater and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Permit Compliance

Part 1.5 of the draft permit explains that any failure to comply with the conditions of this permit constitutes a violation of the CWA. For provisions specifying a time period to remedy non-compliance, the initial failure constitutes a violation of the permit and the CWA and subsequent failure to remedy such deficiencies within the specified time periods constitutes an independent and additional violation of the CWA.

EPA notes that it retains its authority to take enforcement action for non-compliance with the 2003 Small MS4 permit.

Continuation of the Permit

Part 1.6 of the draft permit describes the procedure that applies if EPA does not reissue the permit by its expiration date. If this permit is not reissued or replaced prior to its expiration date, existing discharges are covered under an administrative continuance, in accordance with the Administrative Procedure Act and 40 CFR §122.6, and the conditions of the permit remain in force and in effect for discharges covered prior to expiration. If coverage is provided to a permittee prior to the expiration of this permit, the permittee is automatically covered by this permit until the earliest of: (1) the authorization for coverage under a reissuance or replacement of this permit, following timely and appropriate submittal of a complete NOI; (2) issuance of denial or an individual permit for the permittee's discharge; or (3) formal permit decision by EPA not to reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

Obtaining Authorization to Discharge

In order for a small MS4 to obtain authorization to discharge, it must submit a complete and accurate NOI containing the information in Appendix E of the draft permit. The NOI must be signed in accordance with the requirements of Appendix B-Sub-Paragraph 11 of the draft permit. The NOI must be submitted within 90 days of the effective date of the final permit. The effective date of the permit will be specified in the Federal Register publication of the notice of availability of the final permit. Any small MS4 designated by EPA as needing a permit must submit a Notice of Intent for a permit within 180 days from the date of notification, unless otherwise specified. A small MS4 must meet the eligibility requirements of the permit found in Part 1.2 and Part 1.9 prior to submission of the NOI. A small MS4 will be authorized to discharge under this permit upon the effective date of coverage. The effective date of coverage is upon receipt of written notice by EPA following a public notice of the NOI.

The draft permit provides interim coverage for permittees covered by the previous permit and whose coverage was effective upon the expiration of that permit (May 1, 2008). For those discharges covered by the pervious permit, authorization under the previous permit is continued automatically on an interim basis for up to 180 days from the effective date of the final permit. Interim coverage will terminate earlier than the 180 days when a complete and accurate NOI has been submitted by the small MS4 and coverage is either granted or denied. If a permittee was

covered under the previous permit and submitted a complete and accurate NOI in a timely manner, and notification of authorization under the final permit has not occurred within 180 days of the effective date of the final permit, the permittee's authorization under the previous permit can be continued beyond 180 days on an interim basis. Interim coverage will terminate after authorization under this permit, an alternative permit, or denial.

EPA will provide an opportunity for public comment on each NOI that is submitted. Following the public notice, EPA will authorize the discharge, request additional information or require the MS4 to apply for an alternative or individual permit.

Alternative Permits

Any owner or operator of a small MS4 authorized by a general permit may request to be excluded from coverage under a general permit by applying for an individual permit. This request shall be made by submitting a NPDES permit application together with reasons supporting the request. The Director may also require any permittee authorized by a general permit to apply for and obtain an individual permit. Any interested person may petition the Director to take this action. However, individual permits will not be issued for sources covered by the general permit unless it can be clearly demonstrated that inclusion under the general permit is inappropriate. The Director may consider the issuance of individual permits when:

a. The discharger is not in compliance with the terms and conditions of the general permit;
b. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
c. Effluent limitations guidelines are subsequently promulgated for the point sources covered by the general NPDES permit;
d. A Water Quality Management Plan or Total Maximum Daily Load (TMDL) containing requirements applicable to such point sources is approved;
e. Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; and

f. The discharge(s) is a significant contributor of pollutant or in violation of state water quality standards for the receiving water.

In accordance with 40 CFR §122.28(b) (3) (iv), the applicability of the general permit is automatically terminated on the effective date of the individual permit.

C. Stormwater Management Program (SWMP)

The Stormwater Management Program is a written document required by the permit. The SWMP is a mechanism used to document the practices the permittee is implementing to meet terms and conditions of the permit.

The draft permit requires that the SWMP be a written document and signed in accordance with Appendix B-sub-paragraph 11. The SWMP must be available at the office or facility of the person identified on the NOI as the contact person for the SWMP. The SWMP must be immediately available to EPA, representatives from FWS or NMFS; and representatives from the state or tribal agency. The permittee must also make the SWMP available to any member of the public who makes a request in writing. EPA encourages the permittee to post the SWMP on-line or make it available at a public location such as the library or town/city hall.

The SWMP must contain the following:

- The name and title of people responsible for implementation of the SWMP. If a position is currently unfilled, list the title of the position and modify with the name once the position is filled.
- A complete list of all the waters that receive a discharge of stormwater from the small MS4. For each water body listed include its water quality classification, any impairment and the associated pollutant(s) and the number of outfalls.
- Documentation of permit eligibility regarding ESA. This must include information and any documents supporting the criteria used by the permittee to determine eligibility.
- Documentation of permit eligibility regarding NHPA. This must include information and

any documents supporting the criteria used by the municipality to determine eligibility.

- A map of the separate storm sewer system. The map may be a hard copy map or one that is available on a geographic information system. If available on a GIS system, the web address shall be include in the SWMP
- For each permit condition listed in Part 2.1 and Part 2.2 of the draft permit, the permittee must identify a person responsible for ensuring implementation of the condition. The permittee must identify specific BMPs to address the permit condition and the measurable goals associated with the BMP.
- For each control measure listed in Part 2.3 of the draft permit, the permittee must identify a person responsible for ensuring its implementation. The permittee must identify specific actions or BMPs to address each control measure. The permittee must also identify measurable goals associated with the control measure.
- Documentation of compliance with Part 3.0 – outfall monitoring requirements
- Documentation of compliance with Part 4.0 – state or tribal requirements
- An annual evaluation of the SWMP that contains the information required by Part 5.1 of the draft permit

EPA believes that a written program provides a central accessible source for all information relating to the SWMP. The SWMP required by this draft permit builds on the requirements of the previous permit. While updating the SWMP required by this draft permit, the permittee must continue to enforce the SWMP that was required by the previous permit. This permit does not provide additional time for completing the requirements of the previous permit. Permittees covered by the previous permit must update their SWMP within 120 days from the effective date of the permit to address the terms of this permit.

The draft permit requires that the permittee reduce the discharge of pollutants from the MS4 to the maximum extent practicable, protect water quality, and satisfy the requirements of the CWA. The SWMP must document the actions the permittee has taken to demonstrate compliance with the control measures and other conditions of the permit. EPA believes that implementation of the permit conditions required by Part 2.3 of this draft permit will meet the MEP standard of the

CWA. EPA believes that implementation of the permit conditions required by Part 2.1 and Part 2.2 of the draft permit will be protective of water quality.

The draft permit encourages the permittee to maintain adequate funding to implement the SWMP. Adequate funding ensures that monies will be available to the permittee for implementation of the permit conditions. Adequate funding is the availability of a consistent and reliable revenue source.

EPA does not require a specific funding mechanism or funding alternative. There are several options available to permittees. One funding mechanism is the use of a service fee or a stormwater utility. Usually, fees are based on the size of the property and the amount of impervious area associated with that property. Fees are usually one rate for residential homes and are varied for commercial and industrial facilities based on the property. Stormwater utilities exist in many parts of the country. A few utilities are beginning to appear in the Northeast. New Hampshire municipalities have legislative authority to develop utilities. A second funding mechanism is the general fund of the MS4. The revenue in the general fund usually comes from property taxes. This method of funding often means that levels are inconsistent from year to year and may not increase as the cost to implement the SWMP increases. Finally, stormwater projects may be eligible for grants or low interest loans. The State Revolving Fund may be a source of funding for stormwater projects. Additional information on funding can be found at: National Association of Flood and Stormwater Management Agencies, *Guidance for Municipal Stormwater Funding* (http://www.nafsma.org/pdf/Guidance%20Manual%20Version%202X.pdf) and Indiana University-Purdue University Indianapolis, *An Internet Guide to Financing Stormwater Management* (http://stormwaterfinance.urbancenter.iupui.edu).

Qualifying Local Program (QLP)

The Phase II stormwater program is designed to be flexible and build on existing state or local programs. Specifically, 40 CFR § 122.34(c) allows EPA to reference a state program which the municipality is already subject to as meeting the requirements of one or more of the control measures described in the draft permit. Compliance with the state requirement would constitute

compliance with the requirements of the control measures. At this time, EPA has not determined that any state, tribal or local programs meet the QLP requirements.

New Hampshire has new stormwater related guidance. This three volume set covers antidegradation, post construction and construction and contains NH specific recommended design standards. These three documents should be available by the end of 2008 and permittees in New Hampshire are encouraged to use them once available.
The documents are:
New Hampshire Department of Environmental Services, New Hampshire Stormwater Management Manual: Volume 1 Antidegradation and Stormwater. 2008.

New Hampshire Department of Environmental Services, New Hampshire Stormwater Management Manual: Volume 2 Post Construction Best Management Practices. 2008

New Hampshire Department of Environmental Services, New Hampshire Stormwater Management Manual: Volume 3 Construction Phase Erosion and Sediment Controls. 2008.

Requirements for New Permittees

The draft permit provides different deadlines for municipalities not covered by the previous permit. New permittees have until year three of the permit to complete the map required by the permit as part of the illicit discharge detection program. New permittees have until year four to begin the monitoring program required by Part 3.0. EPA believes it is practical to have the map of the system complete prior to beginning outfall monitoring. Consistent with the timeframe in 40 CFR §122.34(a), EPA is providing the permit term for new permittees to develop and implement the ordinances or other regulatory mechanisms required by Parts 2.3.4 (Illicit Discharges); 2.3.5 (Construction Runoff Management) and 2.3.6 (Stormwater Management in New Development). New permittees must meet all other deadlines as specified in the draft permit

D. Water Quality Based Effluent Limitations

Water Quality Standards

This draft permit includes provisions to ensure that discharges do not cause or contribute to exceedances of water quality standards. The provisions in Part 2.1constitute the water quality based effluent limitations of this permit. The purpose of this part is to establish the broad inclusion of water-quality based effluent limitations for those discharges requiring additional controls in order to achieve water quality standards and other water quality-related objectives, consistent with 40 CFR § 122.44(d). The water quality-based effluent limitations supplement the permit's non-numeric effluent limitations. The non-numeric effluent limitation requirements of this permit are expressed in the form of control measures and BMPs (see Part 2.3) and discussed later in this fact sheet.

If an MS4 discharges into waters that are not impaired, the draft permit employs a presumptive approach to ensure that the permittee's MS4 discharges do not cause or contribute to exceedances of water quality standards. For MS4 discharges into waters that are not impaired, EPA presumes that the conditions in the draft permit will meet applicable water quality standards when fully satisfied. EPA considers this approach valid since, despite ongoing discharges form the permittee's MS4 and other potential sources, these waters have not been categorized as impaired and failing to meet water quality standards. During the previous five years, permittees have implemented SWMPs to comply with the conditions of the 2003 general permit. Under the draft permit, the permittees would continue implementation of an augmented SWMP to comply with several additional and strengthened permit conditions. Therefore, EPA presumes that implementation of an augmented SWMP will at least maintain at present levels the contributions of pollutants from MS4s discharging to unimpaired waters, thereby not causing or contributing to an exceedance of water quality standards.

The draft permit requires permittees to identify to EPA and the state or tribal agency any additional or modified BMPs to be implemented to address any discharge from its MS4 in the event the permittee becomes aware that the discharge causes or contributes to an exceedance of applicable water quality standards. The permittee should use any available information, and add or modify BMPs in its SWMP to abate pollutants sufficiently to meet applicable water quality standards in the event that EPA's presumption proves to be incorrect.

Section 401(a)(1) of the CWA states that EPA may not issue a permit until a certification is granted or waived in accordance with that section by the state in which the discharge originates or will originate. The 401 certification affirms that the conditions of the general permit will be protective of the water quality standards and satisfy other appropriate requirements of state law. The 401 certification may also include additional conditions more stringent than those in the draft permit which the state finds necessary to meet the requirements of appropriate laws. Regulations governing state certification are set forth in 40 CFR §§ 124.53 and 124.55. Concurrent with the public notice of this general permit, EPA will request 401water quality certification.

Section 401(a) of the CWA states in part that in any case where a state, interstate agency or tribe has no authority to issue a water quality certification, such certification shall be issued by EPA. At this time, none of the New England Tribes have approved water quality standards or Section 401 authority for the purpose of regulating water resources within the border of Indian lands pursuant to Section 518(e) of the CWA. As provided for under Section 401(a) (1) of the CWA, EPA will provide certification of this permit for tribal lands.

Water Quality Impaired Waters

The draft permit requires permittees to comply with any additional water quality related requirements for impaired waters. The additional requirements depend on whether the discharge is to an impaired water with or without an approved Total Maximum Daily Load (TMDL).

Each state must develop a list of water bodies that are not meeting the water quality standards applicable to the water body. This list, the "303(d) List", refers to the section of the CWA that requires the listing of the water bodies. The 303(d) list is part of an overall assessment of the water quality called the Integrated Report. The Integrated Report includes both the 303(d) list and the 305(b) assessment (305(b) is the section of the CWA which requires the assessment). States must update these lists every two years.

EPA's regulations require that TMDLs be developed for water bodies not meeting applicable standards (see 40 CFR § 130.7 for the regulations associated with TMDLs). A TMDL specifies

the maximum amount of a pollutant that a water body can receive and still meet water quality standards. The TMDL allocates pollutant loadings to the impaired waterbody from all point and non-point pollutant sources. Regulations at 40 CFR §130.2 define the TMDL as "the sum of the individual wasteload allocations (WLA) for point sources and load allocations (LAs) for non-point sources." Mathematically, a TMDL is expressed as:

$$TMDL = \sum WLA + \sum LA + MOS$$

MOS is an additional margin of safety. The MOS takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. WLAs and LAs make up portions of a receiving water's loading capacity. Once implemented, the TMDL is a strategy designed to meet the loading capacity of the water body and ultimately result in achievement of water quality standards.

The TMDL may establish a specific waste load allocation (WLA) for a specific source, or may establish an aggregate WLA that applies to numerous sources. Typically stormwater sources are expressed as an aggregate in a WLA. The permittee must identify in its SWMP how it will achieve any applicable WLA established in the TMDL. This should include specific BMPs and specific measures to meet the WLA, if applicable. The permittee's demonstration of meeting the requirements of the WLA should focus on evidence that shows that the BMPs are implemented properly and adequately maintained. This demonstration may be an iterative process.
Information on approved TMDLs can be found at:
http://www.epa.gov/region1/eco/tmdl/index.html
Information on the 303(d) lists can be found at:
http://www.epa.gov/region1/eco/tmdl/impairedh2o.html

For MS4 discharges into an impaired water for which there is an EPA approved TMDL as of the effective date of the permit, the draft permit includes, pursuant to 40 CFR §122.44(d)(vii)(B), effluent limits that are consistent with the assumptions and requirements of available waste load allocations included in the TMDL for the MS4 discharges. As of the date of issuance of this draft permit, bacteria TMDLs in the State of New Hampshire have been approved for two water bodies that receive discharges from MS4s in the area of coverage under this permit, Hampton Harbor and Little Harbor. Each approved TMDL report contains an individual waterbody

description, problem assessment and recommended BMPs and actions in the form of a TMDL implementation plan to reduce bacteria consistent with established WLAs. While EPA does not approve the implementation plans of these or any TMDLs, it did consider the implementation plans in its development of the conditions included in the draft permit which EPA considers necessary to support the achievement of the relevant WLA. Effluent limitations, expressed in terms of BMPs that support the achievement of the WLA for each of these waterbodies are identified in Appendix F of the draft permit.

Hampton/Seabrook Harbor

Bacteria is the pollutant addressed by the TMDL for Hampton/Seabrook Harbor. The Towns of Hampton and Seabrook are the MS4s specifically addressed in the approved TMDL. The implementation plan of the TMDL calls for the removal of all human sources of bacteria to the estuary. In order for municipalities to address the requirement of the TMDL, the draft permit requires the municipalities to implement: the illicit discharge detection and elimination program required by Part 2.3.4 of the draft permit; increase the frequency of street sweeping in areas which discharge to the harbor; post information about proper management of pet wastes in areas which discharge to the harbor; and provide information to owners of septic systems about proper maintenance.

Little Harbor

The other TMDL, also for bacteria, applies to Little Harbor. The MS4s subject to this TMDL are the Towns of New Castle and Rye and the City of Portsmouth. The stated goal of the implementation plan is to achieve water quality standards within Little Harbor. The draft permit requires MS4s to implement the illicit discharge detection and elimination program required by Part 2.3.4 of the draft permit in all areas of the municipality. The MS4s must also ensure the elimination of all failing septic systems within the urbanized areas.

Certain bacteria such as fecal coliform, *E. Coli*, and enterococcus bacteria are indicators of potential contamination from human sewage or the feces of warm blooded domestic and non-domestic wildlife (birds and mammals). The presence of these bacteria at elevated levels in a waterbody may also indicate the presence of pathogens that may pose a risk to human health.

Bacteria sources in Little Harbor and Hampton Harbor are from wastewater treatment facilities, municipal systems, septic systems, and marinas or other boating operations. Other sources of bacteria include combined sewer overflows (CSO), sanitary sewer overflows (SSO), sewer pipes connected to storm drains, septic systems, certain recreation activities, wildlife including birds along with domestic pets and animals, and direct overland storm water runoff.

In addition to the approved TMDLs for bacteria, there are four draft TMDLs for chloride for the following waters in the State of New Hampshire: North Tributary to Canobie Lake in Windham, Porcupine Brook in Salem and Windham; Dinsmore Brook in Windham; and Beaver Brook in Derry and Londonderry. Specific conditions have been included in the draft permit for MS4 discharges in New Hampshire to chloride impaired waters. If the draft TMDLs are finalized and approved prior to the issuance of the final permit, and the TMDLs include a WLA applicable to a regulated small MS4's discharge, EPA will incorporate additional BMPs necessary to support the achievement of the WLA into the final permit. Prior to approval of the chloride TMDLs, small MS4s discharging to these impaired waters must implement BMPs designed to avoid causing or contributing to the impairment. The permittee must document these BMPs in the SWMP.

Chloride sources are typically the result of deicing activities during the winter, but sources also include food wastes, water softeners, atmospheric deposition and roadway salt pile runoff. The amount of chloride released into the environment in a given year is typically dependent on the severity of the winter. Chloride persists in the environment after application and is found in both surface waters and groundwater. Chloride is toxic to fresh water species. It can cause density stratification in ponds and lakes which results in oxygen depletion and potential fish kills. Chloride in ground water may contribute to health issues such as hypertension. The draft TMDLs focus on reducing the amount of chloride from the various sources (state roads, town roads, parking lots, storage area, etc). In addition to the chloride reduction requirements in the draft permit, EPA anticipates that additional measures will be developed by an existing group called the Salt Reduction Workgroup. The group includes representatives from NH DES, New Hampshire Department of Transportation (NH DOT), EPA, Federal Highway Administration, representatives from each town in the watershed (selectman and public works), regional planning

commissions and others. These additional requirements may be incorporated in the final permit, a permit modification or future permits.

New or Increased Discharges

The conditions of the draft general permit reflect the goal of the CWA and EPA to achieve and maintain water quality standards. The Federal regulations pertaining to the state anti-degradation policies are found in 40 CFR §131.12. The anti-degradation policy is designed to protect existing uses of the water and protect water quality level such that existing uses be maintained and to protect high quality waters and maintain the high quality unless certain specific demonstrations are made by the discharger.

This draft general permit does not apply to any new or increased discharge to receiving waters unless the new or increased discharge is shown to be consistent with the State's anti-degradation policies. This determination shall be made in accordance with the appropriate State anti-degradation implementation procedures. No new discharge is authorized under the general permit until the discharger receives a favorable anti-degradation review and certification from the State.

Wellhead Protection/Source Water Protection

While the draft permit encourages consideration of infiltration and groundwater recharge in design and implementation of a SWMP, permittees should be aware that groundwater discharges may trigger other regulatory requirements designed to protect underground sources of drinking water. These include requirements under EPA and state groundwater and source water protection programs. Stormwater discharges that are infiltrated through structural controls that dispose of stormwater into the ground are subject to the Safe Drinking Water Act (SDWA) and Underground Injection (UIC) requirements. New Hampshire and Vermont implement the UIC program in their respective states. Indian lands in Connecticut and Rhode Island are regulated under EPA authority.

E. Non- Numeric Effluent Limitations

Non-Numeric Effluent Limitations (MEP)

In addition to water quality-based effluent limitations, NPDES permits are required to contain technology-based limitations. (40 CFR 122.44(a) (1)). When EPA has not promulgated effluent limitations for a category of discharges, or if an operator is discharging a pollutant not covered by an effluent guideline, permit limitations may be based on the best professional judgment (BPJ) of the agency or permit writer. For this permit, effluent limits are based on BPJ. The BPJ limits in this permit are in the form of non-numeric control measures, commonly referred to as best management practices (BMPs). Non-numeric limits are employed under limited circumstances, as described in 40 CFR 122.44(k). EPA has interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 CFR 122.44(k), provides that permits may include BMPs to control or abate the discharge of pollutants when: "(1)[a]uthorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) [a]uthorized under section 402(p) of the CWA for the control of stormwater discharges; (3) [n]umeric effluent limitations are infeasible; or (4) [t]he practices are reasonable to achieve effluent limitations and standards or to carry out the purpose of the CWA." The permit regulates stormwater discharges with BMPs. Due to the variability associated with stormwater, EPA believes the use of BMPs is the most appropriate method to regulate discharges of stormwater from municipal systems in accordance with the above referenced regulation.

Control Measures

The draft permit requires MS4s to continue to control stormwater discharges from the municipal system in a manner designed to reduce pollutants to the maximum extent practicable, and to protect water quality and to satisfy the appropriate water quality requirements of the CWA. The MS4-2003 permit required that "[a]ll elements of the storm water management program must be implemented by the expiration of the permit"[3] This permit does not extend the compliance deadlines set forth in the MS4-2003. Further, permittees authorized under the MS4-2003 must

[3] MS4-2003 Parts IIA.2; IIIA.2; IVA.2; and V.A.2

continue to implement their existing SWMPs while updating their SWMPs pursuant to this new permit.

In order to reduce pollutants to the maximum extent practicable and protect water quality, MS4s must implement a SWMP consisting of the control measures in Part 2.3 of the draft permit. I in determining appropriate conditions for inclusion in the draft permit, EPA evaluated annual reports submitted for the previous permit. Practices which were implemented by a significant number of MS4s assisted EPA in making a determination that a particular BMP was "practicable".

Implementation of the SWMP involves the identification of BMPs and measurable goals for the BMP. The draft permit identifies the objective of each control measure. The permittee must implement the control measures and document actions in the SWMP demonstrating progress towards achievement of the objective of the control measure. The permittee must identify interim goals as steps towards achievement of the objective/long term goal.

Any goals identified as part of the SWMP must be measurable. A measurable goal for the program or control measure is a goal for which progress can be tracked or measured. A well-defined goal will have an outcome associated with it. Goals can be expressed as short term, mid-range or long term. The permittee must evaluate the success of a goal. The permittee can evaluate the goals using a variety of indicators including programmatic; social; physical; hydrological; or environmental. Recognizing that implementation of the SWMP is an on-going and iterative process, subsequent goals will be more difficult to achieve than initial goals.

Measurable goals may be expressed either quantitatively or qualitatively. The method used to assess whether a goal has been met should be measurable, reliable, relevant, and an actual measure of the outcome. There are various methods to measure outcome. This includes confirmation or documentation that a task has been completed; tabulation, tracking an absolute number or value of something; surveying, determining the knowledge or awareness of a group; inspections, actual observations of an event; and monitoring, actual measurement of a pollutant in-stream or in an outfall.

Relying on Another Entity (Part 2.3.1)

In accordance with 40 CFR§122.35, the draft general permit allows an MS4 to rely on another entity for implementation of all or part of a permit condition or control measure. The permittee may rely on the other entity if the other entity is actually implementing the control measure or permit condition. The other entity must agree to implement the measure or condition for the MS4. EPA requires the use of a legal agreement. This agreement must be included as part of the stormwater management program. If the other party fails to implement the measure or permit condition, the permittee is ultimately responsible for its implementation.

Public Education and Outreach (Part 2.3.2)

The MS4 must implement a public education program to distribute educational materials to the community or conduct other outreach activities about the impacts of stormwater discharges on water bodies and steps the public can take to reduce pollutants in stormwater runoff. The education program must be specific to the MS4 and include a focus on the pollutants of concern associated with impaired waters affected by discharges from the small MS4. The overall long-term goal of an effective education program is to change behavior and increase the knowledge of the community.

An education program must have a defined and targeted message for each of the different audiences and must include a measure to evaluate effectiveness of the educational messages. Based on review of annual reports from the previous permit, EPA found that some of the education programs developed by MS4s did not incorporate these expectations. In order to achieve the objective of this measure, the draft permit includes detailed expectations for educating the public.

The draft permit requires the permittee to provide educational materials to residents, commercial entities, institutional facilities, businesses, industrial facilities, and construction and development companies. The draft permit includes topics for consideration for all audiences. The permittee

may use those topics listed or may focus on other topics specific to the small MS4. The permittee must distribute a minimum of two educational messages (a minimum total of eight) to each audience during the permit term. The messages must be spaced at least a year apart. The time in between the distribution of the educational material will allow the municipality to evaluate the effectiveness of the message. The educational messages should reflect the needs and characteristics of the area served by the MS4. This may include distribution of materials in a language other than English as appropriate. Permittees can form partnerships with other organizations to assist in the implementation of its education and outreach programs. These partnerships may include other MS4s in a watershed, environmental groups, watershed associations, or other civic organizations.

During the previous permit term, various groups developed comprehensive public education programs for use by regulated small MS4s. For example, the SuAsCo (Sudbury-Assabet-Concord) Watershed Associated developed a program called "Water Matters." The program provides education tools for small MS4s to distribute in their communities. The program is available to any community, not just those in the Su-As-Co watersheds. Additional information on the program is available at: http://www.stormwatermatters.org/home.html. Similarly the Massachusetts Bays Program has supported the development of a program called Think Blue Massachusetts. Information is available at www.thinkagainthinkblue.org. Another source of information is the UNHSC-NEMO (University of New Hampshire Stormwater Center – Non-Point Source Education for Municipal Officials) – http://www.erg.unh.edu/lid/index.asp.

Public Involvement and Participation (Part 2.3.3)

This control measure is closely related to the public education and outreach control measure. EPA supports the idea that if the public is given an opportunity to understand and participate in a stormwater protection program, the public generally will become supportive of the program. The objective of this measure is to provide and engage the public with opportunities to participate in the review and implementation of the SWMP. The draft permit requires that public participation opportunities, at a minimum, comply with the public notice requirements of the state. However, permittees are encouraged to provide more interactive opportunities for public participation.

Examples include volunteer water quality monitoring, community clean up days, hazardous waste collection days, and adopt a drain/adopt a stream programs.

The draft permit requires that the permittee annually provide an opportunity for the public to participate in the SWMP. Participation efforts should attempt to engage all groups serviced by the MS4. This effort may include creative public information messages such as announcements in neighborhood newsletters, use of television spots on the local cable channel, or announcements or displays at civic meetings. One goal of public participation is to involve a diverse cross-section of people and businesses in the community to assist in development of a program that meets the needs of the permittee.

Illicit discharge detection and elimination (Part 2.3.4)

MS4-2003 required that the "permittee must develop, implement, and enforce a program to detect and eliminate illicit discharges."[4] The MS4-2003 also provides that "[a]ll elements of the stormwater management program must be implemented by the expiration date of the permit."[5] While this draft permit builds upon the requirements set forth in the MS4-2003, it does not extend the deadlines applicable to the illicit discharge detection and elimination minimum measure imposed by the MS4-2003.

This measure requires the MS4 to detect and eliminate illicit discharges from its municipal separate storm sewer system. The regulations at 40 CFR §122.26(b)(2) define an illicit discharge as "…any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities."

Some illicit discharges enter the storm system directly such as incorrectly connected wastewater discharge lines, while others may enter indirectly, such as through infiltration from cracked

[4] MS4-2003 Parts II.B.3; III.B.3; IV.B.3; and V.B.3

sanitary lines or spills collected by drain outlets. Both types of discharges can contribute pollutants to the system that in turn affect water quality. An illicit discharge, typically, is any discharge to a municipal separate storm sewer system that is not stormwater. The draft permit contains a list of sources of non-stormwater that permittees must evaluate to determine whether they are significant contributors of pollutants. If the permittee determines that the source is a significant contributor of pollutants, the permittee must implement measures to control or prohibit that source.

The draft permit describes required components of an illicit discharge detection and elimination program. The draft permit includes the elements that are listed as guidance in 40 CFR §122.34(b)(3) and information and procedures included in Illicit Discharge Detection and Elimination – A Guidance Manual for Program Development and Technical Assessment by the Center for Watershed Protection and Dr. Robert Pitt. EPA has found that aggressive, thorough, and systematic illicit discharge investigations and removal have resulted in improvements to water quality. This determination is based on illicit detection work done in the Charles River and Mystic River in Massachusetts.

The previous permit required each MS4 to develop and implement an IDDE program. Since the issuance of the 2003 permit, EPA, the State, and MS4s have gained an improved and more comprehensive understanding of the nature of illicit discharge connections; the extent of the problem; effective technologies and procedures to detect and verify illicit connections; and the best practices to reduce discharges of contaminated stormwater from illicit connections. Collaborative programs such as the Clean Charles Initiative have demonstrated IDDE can be a key contributor to improved water quality. In consideration of this collective enhancement of knowledge and experience, the draft permit requires more specific BMPs than the 2003 permit. For example, the draft permit requires MS4s to develop a written IDDE protocol that includes specific requirements, procedures, and approaches. Examples of these requirements are a detailed map, a written prioritization of areas with a potential of illicits, wet and dry weather outfall monitoring, record keeping, and thorough and complete storm drain network

[5] See footnote 1

investigations that systematically and progressively evaluate manholes in the storm system to narrow the location of a suspected illicit connection or discharge to an isolated pipe segment. These requirements are described in the following paragraphs.

The previous permit required the MS4 to develop a map that at a minimum depicted the locations of the stormwater outfalls and names and locations of all waters that receive discharges from those outfalls. This map must have been completed by May 1, 2008. The draft permit requires that additional detail be added to the existing map. In addition to outfalls and receiving waters, the map must now include the locations of catch basins, manholes, pipes, treatment facilities associated with the stormwater system, and water resource areas such as drinking water sources. The permittee may choose to include additional information that is helpful, but not required. This additional information includes data regarding land use (zoning information) and the amount of impervious area on a parcel or a catchment. The draft permit does not require a specific tool for the mapping, however a map generated using a Geography Information System (GIS) is EPA's preferred method. The draft permit defines an outfall as a point source (as define in 40 CFR § 122.2) at the location where the municipal separate storm sewer system discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S.

The draft permit provides two years for the MS4 to complete the additional mapping elements required by the draft permit. The draft permit does not provide any additional time for the completion of the map of outfalls and receiving waters that was required in the previous permit. The initial system map must have been complete by May 1, 2008. The two year timeframe for mapping in the draft permit is based on the expectation that the permittee has completed the mapping required by the previous permit.

The MS4 must have adequate legal authority to implement the following activities as part of the IDDE program: prohibit illicit discharges; investigate suspected discharges; eliminate illicit discharges and enforce the IDDE program. The previous permit required development of an ordinance or other regulatory mechanism to address these components. The ordinance must have

been in place and effective by May 1, 2008. The MS4 must reference the authority to implement this measure in the IDDE program which is a part of the overall SWMP.

The MS4-2003 required the permittee to "develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, into the system." The MS4-2003 set forth the required elements of the plan.[6] As required by the MS4-2003, this plan must have been developed and implemented by May 1, 2008. The draft permit does not extend this deadline

The draft permit builds on the requirements of the MS4-2003 by detailing three additional required components of an illicit discharge detection and elimination program. The first component is an assessment and ranking of the catchments within the MS4 for their potential to have illicit discharges. The second component is a written protocol that clearly identifies responsibilities with regard to eliminating illicit connections. The final component is a written systematic protocol for locating and removing illicit connections. Each of these components is discussed in the following paragraphs.

The permittee must assess the illicit discharge potential for all areas that discharge to the MS4. The assessment consists of three steps: (1) delineation of catchments or drainage units; (2) evaluation of the data that exists for those delineated catchments or units and (3) ranking each catchment for its potential to have illicit discharges as "low", "medium" or "high" based on EPA and/or permittee defined screening factors. The EPA defined screening factors that the permittee must consider are listed in the draft permit. The permittee must consider all factors, but not all factors are applicable to all permittees and permittees may add other factors that are relevant to the municipality. The permittee must complete the assessment and the ranking by the end of the first year of the permit. The permittee must document the results of the assessment and ranking and maintain them as part of the SWMP. The permittee must also report this information as part of the annual report. (See Part II - Section G of this fact sheet.) The ranking is intended to aid the permittee in the identification of areas with the greatest potential for illicit connections. The draft permit requires the permittee to begin implementation of the systematic illicit detection

[6] MS4-2003 Parts II.B.3(c); III.B.3(c); IV.B.3(c); and V.B.3(c)

protocol in areas identified as "high" or with the highest ranking. The permittee must continue to implement the protocol in all MS4 areas until all areas have been evaluated. The permittee must justify in the SWMP any decisions not to focus efforts in areas identified as "high" by the ranking.

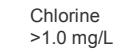
The permittee must have in place a written procedure or protocol that clearly identifies methodologies and responsibilities with regard to eliminating illicit discharges. The protocol/procedure must identify who is responsible to pay for removal of an illicit connection/discharge. The permittee may incur the costs or the owner of the illicit connection may be responsible or a combination of the two depending on circumstances. EPA does not require a specific methodology, only that one exists and that the staff responsible for locating and removing illicit connections is familiar with it. The protocol/procedure must also define appropriate methods for removal of the illicit discharge or connection. Finally, there must be procedures for confirmation of removal of illicit discharges or connections. This protocol/ procedure must be completed by the end of year two of the permit.

The permittee must develop a written procedure that details a systematic approach for locating and removing illicit discharges. This written procedure must also be completed by the end of year two of the permit. The systematic procedure includes three parts. The first part is the outfall inventory; the second part is tracking a discharge to a source; and finally, removal of the source. Each of these parts is discussed in the paragraphs below.

The outfall inventory includes walking all stream miles within the MS4 boundary that receive a discharge from the MS4 and locating all the outfalls. The permittee must complete the inventory during dry weather. The permittee should use the definition of outfall found at 40 CFR § 122.26(b) for purposes of identifying outfalls. When an outfall is located, the permittee must observe the outfall and record specific information. The information that must be recorded includes: the dimensions, shape, material, and spatial location; and the physical condition of the outfall. Each outfall must have a unique identifier. In addition to the physical observations, the permittee must also record any sensory observations. This includes color, odor, floatables, oil sheens or evidence of flow. If flow is observed at an outfall, a sample must be taken and the

source of the dry weather flow determined. The flow must be analyzed for conductivity, turbidity, pH, chlorine, temperature, surfactants (as MBAS), potassium, ammonia and *E. Coli* or enterococcus (as appropriate depending of whether the discharge is to a fresh water or a marine water). The following flow chart can be used by the permittee as a screening tool to help determine the potential source of the discharge.

Flow Chart - Determining Likely Source of Discharge (Adapted from Pitt, 2004)



If the source is not readily determined, a more intensive investigation must be undertaken.

If an outfall has evidence of a flow, but there is not an actual flow during the inventory or dry weather monitoring, there may be an intermittent discharge. Intermittent discharges are difficult to track because they can occur at anytime. There are monitoring techniques a municipality can use to try to address a suspected intermittent discharge. These techniques include: (1) odd hour monitoring; (2) optical brightener monitoring (OBM) traps; (3) caulk dams; (4) pool sampling; and (5) toxicity monitoring.

Odd hour monitoring includes mornings and afternoons, weekday evenings and weekends. OBM traps have an absorbent unbleached cotton pad or fabric swatch and an anchoring devise. Traps are placed in an outfall suspected of an intermittent discharge and then collected after several days of dry weather. When an OMB is placed under fluorescent light, it will indicate exposure to detergents, an indicator for wash waters. The caulk dam is used to create a small dam inside the pipe and then collect a sample of any water that is collected. Pool sampling is when a sample is collected right below the area where an outfall discharges and a sample is also collected upstream in a location not affected by the outfall. The samples are analyzed and compared. Finally, toxicity monitoring involves monitoring for toxicity in the pool below the outfall of a suspected intermittent discharge. Due to the complexities associated with toxicity testing, this method is not recommended unless the municipality has prior experience or an indication of the suspected source.

Tracking a discharge to its source involves investigation that is more intensive. This is accomplished through a storm drain network investigation. A storm drain network investigation involves systematically and progressively opening and inspecting junction manholes in the system to narrow the location of a discharge to an isolated pipe segment between two manholes. The permittee shall inspect each manhole for visual evidence of illicit connections or discharges (e.g. excrement, toilet paper or sanitary products). When flow is observed in the manhole, the permittee shall sample for ammonia and surfactants. Ammonia is a good indicator of sewage. The concentration of ammonia is higher in sewage than in ground water or tap water. Surfactants are the active ingredient in most commercial detergents. Surfactants are typically measured as Methyl Blue Active Substances (MBAS). These are a synthetic replacement for soap. The presence of surfactants is an indicator of sewage and wash waters. There are other indicator parameters the permittee could use such as fluoride. Municipalities typically add fluoride to drinking water supplies and its presence is an indicator of tap water. Potassium is another indicator that has relatively high concentrations in sewage. When the concentration of potassium is evaluated in combination with the concentration of ammonia, the ratio of the two can help distinguish wash waters from sanitary wastes.

In addition to determining what indicators to use to determine if a manhole is "clean" or "dirty", the permittee must also determine where in a particular catchment to begin the investigation of manholes for illicit connections. The permittee must begin investigations in catchments identified as "high" or catchments with known illicit discharges. The permittee must decide whether the systematic investigations will be from the outfall working progressively up into the system (bottom up) or from the upper parts of the catchment working progressively down (top down). Either method or a combination that includes systematic inspection of junction manholes is acceptable. The permittee must document the chosen procedure in the protocol required by Part 2.3.4.6(d). EPA believes that in systems that are complex and service large populations, the top down approach is the most effective for locating illicit discharges.

The permittee must begin its systematic investigation of catchments no later than 27 months from the effective date of the permit. If the permittee completes the protocol for systematic identification prior to year two of the permit, the permittee must begin their systematic investigation no later than three months from the completion of the protocol. The permittee must address any illicit connections found prior to completion of the protocol in accordance with Part 2.3.4.2 of the draft permit. The permittee shall continue the investigations until the permittee has evaluated all areas of the MS4.

In addition to the use of indicators to help identify the source of an illicit connection or discharge, the permittee may use dye testing, video testing, smoke testing or other appropriate methods to aid in locating illicit connections or discharges.

The draft permit requires the permittee to either remove or eliminate the illicit discharge or take appropriate enforcement action within six months of detection. The permittee must also track the progress of the IDDE program implementation. The permittee must identify indicators it will use for tracking the effectiveness of the program. Appropriate tracking indicators are those that demonstrate elimination of a pollutant source and/or water quality improvements. For example, if a permittee has a beach that has closures due to bacteria, an appropriate indicator for tracking progress would be a decrease in the frequency of beach closures.

In addition to detecting and removing illicit discharges, the permittee must also develop and implement mechanisms and procedures for preventing illicit discharges. This includes training to inform public employees, businesses, and the general public of the hazards associated with illegal discharges. The requirement to prevent illicit discharges can be incorporated into the public education and public participation control measures. Examples of mechanisms to prevent illicit discharges include identification of opportunities for pollution prevention or source control; distribution of information concerning car washing or swimming pool draining; routine maintenance activities; and inspections of facilities.

Construction site stormwater runoff control (Part 2.3.5)

The MS4-2003 required that the "permittee must develop, implement and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in land disturbance of greater than or equal to one acre [and] less than one acre if part of a larger common plan."[7] While this draft permit builds upon the requirements set forth by the MS4-2003, it does not extend the deadlines applicable to the construction site stormwater runoff control minimum measure imposed by the MS4-2003.

MS4s are required to continue to review and enforce a program to reduce pollutants in stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre and discharge to the MS4. The overall objective of an effective construction runoff management program is to have a program that minimizes or eliminates erosion and maintains sediment on site.

The construction program required by the draft permit is different from EPA's program that is implemented through the Construction General Permit (CGP) although there is some overlap. EPA's CGP applies to construction projects that have one or more acres of disturbed land and discharge directly to a water body or indirectly through an MS4. The MS4 program must address the discharges from construction projects that discharge directly to its system. Discharges from a

[7] MS4-2003 Parts II.B.4; III.B.4; IV.B.4; and V.B.4

construction project to a combined sewer system and construction projects that do not discharge at all, are not subject to the CGP (see 40 CFR §122.26(a)(7)). A permittee is not required to regulate any construction project that receives a waiver from EPA in accordance with 40 CFR § 122.26(b) (15) (i).

The permittee must have an ordinance or other regulatory mechanism requiring proper sediment and erosion control. The requirement to develop the ordinance was part of the previous permit. The ordinance must have been in place and effective by May 1, 2008. In addition to addressing sediment and erosion control, the ordinance must include controls for other wastes on constructions sites such as demolition debris, litter and sanitary wastes. EPA encourages permittees to include design standards in local regulations for sediment and erosion control BMPs. The draft permit includes a list of controls that could be included as part of the local program. The draft permit also provides an example of a design standard that requires the control the volume of a specific size storm event, but the permit does not require the MS4 to include it as part of the program.

The construction program must have procedures for pre-construction review and approval of site plans. Permittees should make every effort to ensure that qualified personnel review plans. The procedures must ensure that plan reviews include consideration of water quality impacts. Site plan review should include consideration of comments from the public. These review procedures should be written.

The construction program must have procedures for site inspections and enforcement. Qualified personnel should perform inspections. Inspections should occur during construction as well as after construction to ensure that BMPs are installed and operating as described in approved plans. The permittee shall have clearly defined procedures regarding who is responsible for inspections and what aspects of the construction site are to be inspected. The permittee must have authority to impose sanctions if construction projects are found not to be in compliance with the local ordinance. Sanctions can include monetary penalties or stop work orders.

MS4s should review existing procedures in the community that apply to these activities. Often

construction plans are seen by the planning board that may not have the technical expertise of engineering staff to evaluate them. An MS4 should look at the various components of the local government and whenever possible, optimize coordination between municipal offices and other MS4s as appropriate to ensure adequate review of plans and other documents associated with a construction project.

Stormwater Management in New Development and Redevelopment (Part 2.3.6)

The MS4-2003 required that the "permittee must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre and discharge to the municipal system [and] less than one acre if the project is part of a larger common plan of development which disturbs greater than one acre" and set forth required elements of the post construction program.[8] This draft permit builds upon the requirements set forth in the MS4-2003, but does not extend the deadlines applicable to the post construction storm water management in new development and redevelopment minimum measures imposed by the MS4-2003.

This measure was called Post Construction Stormwater Management in New Development and Redevelopment under the previous permit. The name of the measure was changed to more accurately reflect EPA's expectations with regard to implementation of the measure. EPA encourages practices that manage stormwater on site and maintain or improve site hydrology. Practices which support this effort are discussed in the following paragraphs.

This measure applies in areas of new development and redevelopment one acre or more in size. The long-term objective of this measure is to have the hydrology associated with new development closely mirror the pre-development hydrology and to improve the hydrology of redeveloped sites. Studies have indicated that prior planning and design for the minimization of pollutants in post construction stormwater discharges is the most cost-effective approach to stormwater quality management. Post construction stormwater runoff may cause two types of

[8] MS4-2003 Parts II.B.5; III.B.5; IV.B.5; and V.B.5

impacts. One is an increase in the type and the quantity of pollutants. The alteration of the land by development can increase the discharge of pollutants such as oil and grease, heavy metals, and nutrients. Another impact occurs with an increase in the quantity of stormwater that is delivered to water bodies during storm events. Increases in impervious area decrease the amount of precipitation that naturally infiltrates into the ground. The lack of natural infiltration increases the volume of stormwater runoff into water bodies. The increased flows and increase in sediment discharges can cause stream bank scouring, impacts to aquatic habitat, and flooding.

This control measure requires the MS4 to continue to review and enforce a program to address post construction stormwater runoff from areas of new development and redevelopment that disturb one or more acres. The MS4 must implement an ordinance or other regulatory mechanism to manage post construction stormwater runoff. This ordinance was required under the previous permit and must have been effective by May 1, 2008.

The draft permit also requires the permittee to assess current street and parking lot designs that affect the creation of impervious cover. The objective of this assessment is to determine if changes in design standards can be made to accommodate Low Impact Development (LID) options. Some of the street and parking lot design standards and requirements a municipality would want to consider in this assessment include flexibility in road design standards (the width of the road and placement of sidewalks) and flexibility in design of parking lots (shared and multi-level lots, and flexibility in the number of parking spaces). If the assessment indicates that changes in design standards or requirements are practicable, the municipality must develop recommendations and a schedule for implementing the changes.

Management of stormwater on-site can be accomplished in many ways. LID focuses on using practices that imitate the natural water cycle. Rather than directing stormwater to a pipe or conveyance, the stormwater is managed on-site. LID practices can work at the site level as well as the watershed level. The draft permit requires the permittee to evaluate the existing local regulations and make determinations as to whether the existing local regulations allow LID practices and what changes would be necessary for LID practices to occur. Some of the LID practices that the municipality should consider are green roofs; infiltration practices, such as

porous pavement and rain gardens; and water harvesting devices, such as rain barrels and cisterns.

Another method a permittee can use to management stormwater is to adopt a Master Plan based on smart growth principles that directs development towards suitable areas and away from important natural resources. The draft permit does not require the permittee to adopt a Master Plan, but EPA encourages MS4s to consider this method as it is a powerful tool that can be used to help a permittee more effectively manage resources. However, the plan alone may not be enough to be the sole mechanism for addressing post construction stormwater runoff. Implementation of a Master Plan includes the adoption of zoning, subdivision ordinances, or other regulations that implement the smart growth principles in the Master Plan. Through these principles and regulations permittees can encourage compact development and redevelopment, and discourage the development of more pristine areas. This will minimize the amount of new impervious surfaces and the generation of stormwater runoff and protect water quality.
The draft permit contains requirements to reduce stormwater impacts on water quality. Impacts are due to a variety of factors including volume, frequency and quality. Stormwater can contain any pollutant that is on the ground and can be transported with the stormwater as it moves across an area. These pollutants may include bacteria, nutrients, metals and sediments. Large volumes of stormwater can cause erosion along stream banks and result in altered habitats. Studies from the Center for Watershed Protection (CWP) have shown that impairments from stormwater runoff can be observed in watersheds with as little as 10 percent impervious cover. Impervious cover includes roads, sidewalks, driveways, roof tops, and other surfaces that do not allow for infiltration. The requirements in the draft permit focus on critical waters and small streams. The permit requires the permittee to reduce the frequency and volume of stormwater to these critical waters. The draft permit encourages the management of the first one inch of rainfall from a 24 hour storm. Data developed by Tetra-Tech for EPA indicates that 90 percent of the storm events in New Hampshire are one inch or less. If the volume associated with storms of that size is effectively managed, there should be a significant decrease in overall stormwater volume that is discharged from a site.

The draft permit also requires the permittee to estimate the amount of impervious cover within

sub-watersheds of the municipality. EPA will provide permittee with an initial estimate. The permittee shall inventory properties and infrastructure within it jurisdiction that have the potential to be retrofitted with BMPs designed to reduce the frequency and intensity of stormwater discharges. Although not a pollutant, impervious cover can be used as a surrogate pollutant when dealing with stormwater discharges. In the simplest terms, reductions in the amount of impervious cover within a watershed should result in reductions of stormwater quantities. Reductions in stormwater quantities should result in improvements to water quality. The permittee is required to track the number of acres of impervious cover that have been added or removed annually.

Where it is practicable to reduce the amount of existing impervious cover, properties often can be retrofitted with low impact development techniques that remove direct hard connections that drain the property's impervious surface to the MS4. These techniques include swales, rain gardens, bioretention basins, porous pavement, and collection and infiltration systems for roof runoff. Because of the effectiveness in reducing stormwater pollution by decreasing directly connected impervious area (DCIA), the draft permit contains provisions to track the amount of DCIA in each sub-watershed within the jurisdiction of the MS4. The draft permit requires the permittee to report this estimation annually ant to evaluate the feasibility of reducing the DCIA on municipality owned properties. The draft permit encourages the reduction of DCIA through retrofit technologies.

Pollution Prevention/Good Housekeeping (Part 2.3.7)

The MS4-2003 required that the "permittee must develop and implement a program with a goal of preventing and/or reducing pollutant runoff from municipal operations" and set forth required elements of the pollution prevention and good housekeeping program.[9] While this draft permit builds upon the requirements set for by the MS4-2003, it does not extend the deadlines applicable to this minimum measure imposed by the MS4-2003.

[9] MS4-2003 Parts II.B.5; III.B.5; IV.B.5 and V.B.5

This measure requires small MS4s to develop and implement an operation and maintenance program that includes a training component. The ultimate goal of this measure is preventing or reducing pollutant runoff from all municipal operations. The draft permit includes more detailed requirements than the previous permit for the implementation of this control measure. Permittees are required to develop an operations and maintenance plan for the following permittee-owned activities or facilities: parks and open spaces; buildings and facilities; vehicles and equipment maintenance; and roadways and storm systems.

The permittee must develop and implement operation and maintenance plans by the end of the first year of the permit. For management of open space and parks, the draft permit requires an evaluation of the use, storage, and disposal of pesticides and fertilizer practices to ensure that they are protective of water quality. The permittee must also ensure that lawn maintenance and landscaping activities are protective. During the evaluation of buildings and facilities, the permittee must consider all buildings it owns. This includes police and fire stations, schools, and other offices. The permittee should evaluate the use and storage of petroleum products, management of dumpsters, and other wastes. As stated in the objective of this measure, the permittee must implement good housekeeping and pollution prevention measures. In areas where permittee-owned vehicles are stored, the permittee must develop procedures to ensure vehicles that are leaking or require maintenance are stored indoors. Municipal fueling areas must be covered unless impracticable. Washwaters from permittee-owned vehicles must not be discharged to the MS4.

The draft permit contains specific frequencies for street sweeping and catch basin cleanings. Based on a review of annual reports, EPA is requiring that permittees must sweep all streets a minimum of twice per year. EPA believes that this frequency is reasonable. Over 80 percent of MS4s reported sweeping both commercial and residential streets at least once per year. One should occur in the spring to collect the sand from the winter and the other in the fall to collect the leaves. Although not required by the permit, the use of a high efficiency vacuum sweeper is preferred. The draft permit contains a requirement to clean all catch basins a minimum of once every other year. Based on the annual reports, 75 percent of municipalities clean catch basins located on commercial streets at least once per year and 60 percent clean catch basins on

residential streets at least once per year. The municipality must track the amount of material removed from each basin and increase the frequency of cleaning if evidence suggests that material is accumulating more quickly than in other basins. Basins in priority areas may also require more frequent cleaning.

The permittee must establish procedures for winter activities. This includes evaluation of salt and sand use. Permittees are encouraged to minimize the amount of salt used and to evaluate opportunities for the most cost effective and environmentally acceptable management practices. The permittee must ensure that snow removal practices do not result in the discharge of snow to a water of the United States.

The permittee must establish and implement maintenance schedules and inspection frequencies for all permittee-owned BMPs.

In addition to the operation and maintenance plans required for permittee-owned operations, the permittee must develop a Stormwater Pollution Prevention Plan (SWPPP) for municipal maintenance garages, public works facilities, transfer stations, or other waste management facilities. If a facility that is already covered by EPA's Multi-Sector General Permit (MSGP), the SWPPP required by that permit will be sufficient. The SWPPP required by the MSGP may be referenced in the MS4s SWMP.

The permittee must develop a SWPPP that consists of the following elements: (1) a pollution prevention team – this team is responsible for the development, implementation and revision of the SWPPP; (2) a description of the facility and identification of potential pollutant sources; (3) identification of any stormwater controls at the facility; and (4) implementation of specific management practices at the facility. The conditions contained in this section are based on the conditions contained in the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (MSGP). They consist of pollution prevention activities such as preventing exposure, good housekeeping practices, and preventative maintenance. The draft permit requires procedures for spill prevention and response and management of runoff. All salt piles or piles that contain salt must be covered or enclosed if stormwater runoff from that pile has

the potential to discharge to a Water of the United States.

State specific requirements (Part 4.0)

The draft permit encourages the consideration of infiltration and ground water recharge when implementing the minimum measures, not just post construction. However, stormwater discharges that are infiltrated through injection wells are subject to the Safe Drinking Water Act and EPA's Underground Injection Control (UIC) Program at 40 CFR Part 144. New Hampshire implements the federal UIC program. Indian lands in Connecticut and Rhode Island are covered under EPA authority. More information about UIC requirements, including state program contacts, is available at http://www.epa.gov/region1/eco/drinkwater/pc_groundwater_discharges.html

F. Outfall Monitoring Program (Part 3.0)

On January 8, 2008, EPA hosted a meeting at its Boston office to examine monitoring for small MS4s. Over 100 people participated. EPA presented monitoring options as well as examples of monitoring requirements of other states. Participants were invited to share their experience with monitoring. Additional information on the meeting is available at: www.epa.gov/region1/topics/water/stormwater.html. Many participants were not opposed to monitoring, but most expressed the need for any monitoring to be flexible and meaningful. EPA has included monitoring in this draft general permit. The monitoring in the draft permit is directly related to the implementation of the illicit discharge detection and elimination program.

The draft permit requires dry weather screening of all outfalls. Dry weather screening involves field observations, field screening analytical techniques and analytical monitoring when a dry weather discharge is detected. The permittee must implement dry weather screening as part of the IDDE program. The permittee must screen 25 percent of its outfalls each year beginning the second year of the permit. Screening operations may involve visiting an outfall more than one time. Based on observations collected during fieldwork, the permittee may find evidence of an illicit discharge, but no flow. These outfalls must continue to be evaluated to assess the source of

any potential illicit discharge.

Dry weather discharges must be analyzed for the following pollutants: conductivity, turbidity, pH, chlorine, temperature, surfactants (as MBAS), potassium, ammonia and *E. Coli* or enterococcus (as appropriate depending of whether the discharge is to a fresh water or a marine water). The municipality must determine the source of the dry weather discharge, and if determined to be an illicit discharge, remove it.

Certain pollutants provide an indication of potential illicit sources. For example, ammonia is an indicator of sewage, boron is often found in detergents and soaps, surfactants is an indicator of washwaters, and chlorine may indicate tap water because it is often used as a disinfectant.

The draft permit also requires the municipality to monitor outfalls during wet weather. The outfalls monitored during wet weathers in a particular year should be the same outfalls monitored during dry weather, to the extent practicable. Wet weather flows shall be monitored for: chlorine; potassium; ammonia; pH; surfactants (as MBAS); temperature; turbidity; conductivity and *E.Coli* or enterococcus (as appropriate depending on whether a discharge is to fresh or marine water).

If an outfall discharges directly to a water that is impaired, the permittee must also sample for the pollutant identified as the cause of impairment provided a test method for the pollutant is included in 40 CFR part 136. If the pollutant is present, the permittee must implement procedures for the control measures required by Part 2.3 of the permit to address or eliminate the pollutants.

G. Evaluation, Record Keeping and Reporting

The permittee must periodically evaluate its SWMP for the following: compliance with the terms of the permit, the appropriateness of the identified BMPs and progress towards achieving the objective of the control measure and the permittee's measurable goals. The permittee may need to change its selected BMPs identified in the SWMP based on this evaluation process in order to

ensure compliance with the terms of the permit including water quality-based requirements.

Record Keeping (Part 5.2)

The permittee must keep all records required by this permit for a period of five years. The permittee must submit records only when requested by EPA.

Reporting (Part 5.3)

The permittee must submit an annual report. The reporting year is July 1 through June 30 and annual reports are due August 1. The due date for the annual report in the draft permit is a change from the annual report due date of MS4GP-2003. EPA is proposing this change to more closely conform to the fiscal year of many municipalities. EPA invites comment on this proposed change. The report must include a self-assessment regarding compliance with the terms of the permit, the appropriateness of selected BMPs, and the progress towards achieving the permittee identified measurable goals. The report must also contain a summary of any information that has been collected and analyzed. This includes all types of data. The permittee must also indicate what activities are planned for the next reporting cycle and discuss any changes to either BMPs or measurable goals. The report must indicate if any control measure or measurable goal is the responsibility of another entity.

The draft permit contains more detailed reporting requirements than in the previous permit. Reports must contain sufficient information to enable EPA to assess the permittee's compliance with the permit.

The following is list of some key milestones within the draft permit:

Within 120 days of authorization:

- Update SWMP and BMP goals

Within six (6) months of the effective date of the permit

- Complete inventory of all permittee-owned facilities

End of year one of the permit

- Distribution of at least two (2) educational messages to one or more of the targeted audiences
- Completion of illicit discharge potential assessment and ranking
- Completion of written protocol regarding responsibility for fixing illicit connections and discharges, confirming their removal and tracking program process
- Estimation of impervious cover in each delineated sub-watershed
- Written Operations and Maintenance procedures for municipal operations.
- Written Stormwater Pollution Prevention Plan for maintenance garages and waste handling facilities

End of year two of the permit

- Distribution of at least two (2) educational messages to one or more of the targeted audiences
- Complete map of separate storm sewer system
- Complete written systematic protocol for locating and removing illicit connections
- Complete report which assesses street design guidelines and parking requirements
- Implement monitoring program
- Inventory and Monitor 25 percent of outfalls during both wet and dry weather (this continues annually for the remainder of the permit term)

End of year three of the permit

- Implement systematic program for locating and removing illicit connections

Annual activities

- Provide at least one opportunity for public participation
- Employee training
- Comprehensive site evaluations at the permittee's facilities with a SWPPP

Reports are due annually on August 1 and must be submitted to the address provided in the permit.

H. Standard Permit Conditions

40 CFR §§ 122.41 and 122.42 establish requirements that must be in all NPDES permits. Appendix B of the draft general permit includes these requirements.

I. 401 Water Quality Certification

Section 401 of the CWA provides that no Federal license or permit, including NPDES permits, to conduct any activity that may result in any discharge into navigable waters shall be granted until the State in which the discharge originates certifies that the discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA. The Section 401 certification process is underway. Specific 401 certification requirements are contained in Part 4.0 of the draft permit.

III INFORMATION AND RESOURCES

EPA has developed several tools to assist MS4s in the development of their stormwater management programs. The following is a non-inclusive list of some of the available resources:

1. MS4 Program Evaluation Guidance and the Illicit Discharge Detection and Elimination Guidance Manual is available from EPA's publications website: http://cfpub1.epa.gov/npdes/pubs.cfm?program_id=6
2. Menu of BMPs available at: http://www.epa.gov/npdes/menuofbmps/menu.htm
3. Measurable Goals Guidance available at: http://cfpub1.epa.gov/npdes/stormwater/measurablegoals/index.cfm
4. EPA Stormwater Home page: http://www.epa.gov/npdes/stormwater contains links to stormwater publications including the Illicit Discharge Detection and Elimination guidance manual; model ordinances; and educational materials including EPA stormwater webcast series.
5. Source Water Practices Bulletin. Managing Stormwater Runoff to Prevent Contamination of Drinking Water: http://www.epa.gov/safewater/swp/stormwater.pdf
6. Center for Watershed Protection: http://www.cwp.org
7. Financing Stormwater Management: http://stormwaterfinance.urbancenter.iupui.edu

8. Low Impact Development : http://www.lowimpactdevelopment.org and Low Impact Development Urban design tools: http://www.lid-stormwater.net
9. TMDL information is available at: http://www.epa.gov/region1/eco/tmdl/approved.html
10. Water Quality Standards: http://www.epa.gov/waterscience/standards/wqslibrary/
11. Stormwater Center: www.stormwatercenter.net
12. New England Interstate Water Pollution Control Commission: www.neiwpcc.org
13. Smart Growth: www.smartgrowth.org and http://www.epa.gov/smartgrowth/
14. New Hampshire groundwater discharge and underground injection control regulation requirements.

http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge/index.htm

15. New Hampshire drinking water source protection requirements.

http://des.nh.gov/organization/divisions/water/dwgb/dwspp/index.htm

16. Vermont Department of Environmental Conservation, Water Supply Division. http://www.anr.state.vt.us/dec/watersup/wsd.htm

17. Vermont Department of Environmental Conservation, Wastewater Management Division, Underground injection Program http://www.anr.state.vt.us/dec/ww/uic.htm

18. EPA Region I, Drinking Water Program: Drinking Water and Underground Injection Control http://www.epa.gov/region01/eco/drinkwater/epacontacts.html

IV. OTHER LEGAL REQUIREMENTS

A. Environmental Impact Statement Requirements

The draft general permits do not authorize discharges from any new sources as defined under 40 CFR §122.2. Therefore, the National Environmental Policy Act, 33 U.S.C. Sections 4321 et seq., does not apply to the issuance of these general NPDES permits.

B. Section 404 Dredge and Fill Operations

This draft permit does not constitute authorization under 33 USC Section 1344 (Section 404 of the Clean Water Act) of any discharge of dredged or fill material into waters of the United States.

C. Executive Order 12866

EPA has determined that this draft general permit is not a "significant regulatory action" under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the EO.

D. Paperwork Reduction Act

The information collection requirements of this draft permit were previously approved by the Office of Management and Budget(OMB) under the provisions of the Paperwork Reduction Act, 44 USC 3501 *et seq.* and assigned OMB control number 2040-0086 (NPDES permit application) and 2040-0004 (Monitoring Reports).

E. Regulatory Flexibility Act

EPA's current guidance, entitled Federal Guidance for EPA Rule writers: Regulatory Flexibility Act [RFA] as Amended by the Small Business Regulatory Enforcement and Fairness Act, was issued in November 2006 and is available on EPA's website: http://www.epa.gov/sbrefa/documents/rfafinalguidance06.pdf. After considering the guidance, EPA concludes that since this general permit affects less than 100 small entities, it does not have a significant economic impact on a substantial number of small entities.

The RFA defines a "small governmental jurisdiction" as the government of a city, county, town, township, village, school district, or special district with a population of less than 50,000.

F. Unfunded Mandates Reform Act

Section 201 of the Unfunded Mandates Reform Act (UMRA), Public Law 104-4, generally requires Federal agencies to assess the effects of their "regulatory actions" on tribal, state, and local governments and the private sector. The UMRA defines "regulatory actions" to include proposed or final rules with Federal mandates. The draft permit proposed today, however, is not a "rule" and is therefore not subject to the requirements of UMRA.

Fact Sheet – Small MS4 – December 2008 – NEW HAMPSIRE

ATTACHMENT 2

Cross Reference by Commenter

EPA is also providing a cross-reference chart (immediately below) showing each commenter where its particular comments are addressed. EPA has reviewed each comment in its entirety.

Cities and Towns
Town of Amherst: 2.3.4.5; 2.3.4.6.d; 2.3.5.3.e; 2.3.6.4
Town of Derry: 1.10.2; 2.1.1.c; 2.2.2; 2.2.3; 2.2.4.a; 2.3.2; 2.3.4; 2.3.4.6.d; 2.3.7.1.b; 2.3.7.1.d; 3.1; 3.3; 4.1; 5.0; 6.0; II A, B, E;
City of Dover: 2.3.2; 2.3.4; 2.3.6.8; 2.3.7.1; 2.3.7.2.a; 3.1; II, IIA, B, C, D;
Town of Durham: 2.1.1.c; 2.2.2.d; 2.2.3; 2.2.4; 2.2.4.b; 2.2.4.c; 2.2.4.e; 2.3b
Town of Exeter: 1.9; 2.1.1.c; 2.2.3; 2.3.4.4; 2.3.4.6.d; 2.3.5.4; 2.3.7.1.b; 2.3.7.1.d; 3.1; II.E
Town of Goffstown: 2.1.1.c; 2.2.3; 2.3.4.6.d; 2.3.6.4; 2.3.6.7; 2.3.7.1.b; 2.3.7.1.d; 3.1
Town of Hollis: 2.3.b; 3.1
Town of Londonderry: 1.10.2; 2.1.1.c; 2.2.3; 2.2.4.a; 2.3.2; 2.3.4.1; 2.3.6.4; 2.3.7.1.b; 3.1
City of Manchester (Sheppard): 1.10.2.b, 1.1.c, 1.10.3, II. C, E
City of Manchester (Robinson): 2.3.2; II.E
City of Nashua: 1.10.c; 2.2.2.a; 3.1; II.A
City of Portsmouth (Allen): 1.4; 1.7.2; 1.8; 1.10.c; 2.2.3; 2.3.2; 2.3.4.2; 2.3.4.4; 2.3.4.6; 2.3.5; 2.3.6.5; 2.3.6.8.b; 2.3.7.1.d; 3.1.2; 3.3; II.C, D.
City of Portsmouth (Bohenko): II.B
Town of Seabrook: 2.3.2; 2.3.4.6.d; II.C
Town of Seabrook (Strause): 2.3.4
City of Somersworth: 2.2.3; 2.3.2; 2.3.4.6.d; 2.3.7.1.b; 2.3.7.1.d.i; 3.1; II.C, E
Town of Rochester: II.B
Town of Windham: 1.9

Other commenters
Comprehensive Environmental, Inc.: 2.2.3; 2.3.6.8.b; 2.3.7.1.d; 3.3
Conservation Law Foundation et al.: 1.1; 1.3, 1.7.4; 2.1.1.a; 2.1.1.c; 2.2; 2.2.1.a; 2.2.1.c; 2.2.1.d; 2.2.3; 2.2.4; 2.3.6.6; 2.3.7.1.d.iii; 2.3.7.2.b.iv
Roger Frymire: 2.3.3; 2.3.4.2; 2.3.4.6.d; 3.0; 3.2; 3.3; 3.3.2
Steve Miller: 2.3.2; 2.3.4; 2.3.6.4; 2.3.7.d; 3.1; II.B
New Hampshire Department of Transportation: 2.2.3; 2.2.4.e; 2.3.4.6.d; 2.3.6.8.a; 2.3.6.8.b; 2.3.7.1.d.i; 2.3.7.1.d.ii; 2.3.7.2; 7.0
Seacoast Stormwater Coalition of New Hampshire: II; II.C, D
University of New Hampshire: 2.3.4.4; 2.3.5; 2.3.7.1.b; 2.3.7.1.d.i; 2.3.7.1.d.ii; 2.3.7.1.d.iv; 3.1; 5.3

ATTACHMENT 3

EPA New England Stormwater Outfall Sampling Protocol
Draft - April 2011

Purpose

This document provides a common framework for EPA New England ("EPA-NE") staff to develop and implement stormwater outfall sampling events, and provides a recommended approach to State and local watershed association personnel. Adopted from Boston Water and Sewer Commission ("BWSC") (2004), Pitt (2004), and based upon fieldwork conducted and data collected by EPA-NE, the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry and wet weather to complete a screening-level investigation of stormwater outfall discharges or flows within the drainage system. When necessary, the addition of more conclusive chemical markers may be included. The protocol is applicable to most typical Municipal Separate Storm Sewer Systems ("MS4s") and smaller tributary streams. The smaller the upstream catchment area and/or more concentrated the flow, the greater the likelihood of identifying an upstream wastewater source.

Introduction

The protocol is structured into several phases of work that progress logically through elements of investigation planning and design, laboratory coordination, sample collection, and data evaluation. The protocol involves the concurrent collection and analyses of water samples for surfactants, ammonia, total chlorine, and bacteria. When more precise confirmation regarding the presence or absence of human sanitary sewage is necessary, and laboratory capacity is available, the additional concurrent collection of Pharmaceutical and Personal Care Product ("PPCP") samples is advised. When presented with a medium to large watershed or numerous stormwater outfalls, the recommended protocol is the screening of all outfalls using the surfactant, ammonia, total chlorine, and bacterial analyses, and using the resulting data to prioritize and sample a subset of outfalls for all parameters, including PPCP compounds and additional analyses as appropriate. Ideally, screening-level analyses can be conducted by state, municipal, or local watershed association personnel, and a prioritized sub-set of outfalls can be sampled by EPA-NE using more advanced confirmatory techniques.

Step I – Reconnaissance and Investigation Design

Each sample event should be designed to answer a specific problem statement and work to identify the source of contamination. Any relevant data or reports from State, municipal, or local watershed associations should be reviewed when selecting sample locations. Aerial photography, mapping services, or satellite imagery resources are available free to the public through the internet, and offer an ideal way to pre-select locations for either field verification or sampling.

Sample locations should be selected to segregate outfall sub-catchment areas or surface waters into meaningful sections. A common investigative approach would be the identification of a specific reach of a surface water body that is known to be impaired for bacteria. Within this

specific reach, stormwater outfalls and smaller tributary streams would be identified by desktop reconnaissance, municipal outfall mapping, and field investigation when necessary. Priority outfalls or areas to field verify the presence of outfalls should be selected based on a number of factors, including but not limited to the following: those areas with direct discharges to critical or impaired waters (e.g. water supplies, swimming beaches); areas served by common/twin-invert manholes or underdrains; areas with inadequate levels of sanitary sewer service, Sanitary Sewer Overflows ("SSOs"), or the subject of numerous/chronic sanitary sewer customer complaints; formerly combined sewer areas that have been separated; culverted streams, and; outfalls in densely populated areas with older infrastructure. Pitt (2004) provides additional detailed guidance.

When investigating an area for the first time, the examination of outfalls in dry-weather is recommended to identify those with dry-weather flow, odor, and the presence of white or gray filamentous bacterial growth that is common (but not exclusively present) in outfalls contaminated with sanitary sewage (see Attachment 1 for examples). For those outfalls with dry-weather flow and no obvious signs of contamination, one should never assume the discharge is uncontaminated. Sampling by EPA-NE staff has identified a number of outfalls with clear, odorless discharges that upon sampling and analyses were quite contaminated. Local physical and chemical conditions, in addition to the numerous causes of illicit discharges, create outfall discharges that can be quite variable in appearance. Outfalls with no dry-weather flow should be documented, and examined for staining or the presence of any obvious signs of past wastewater discharges downstream of the outfall.

As discussed in BWSC (2004), the protocol may be used to sample discreet portions of an MS4 sub-catchment area by collecting samples from selected junction manholes within the stormwater system. This protocol expands on the BWSC process and recommends the concurrent collection of bacteria, surfactant, ammonia, and chlorine samples at each location to better identify and prioritize contributing sources of illicit discharges, and the collection of PPCP compounds when a more conclusive source verification is necessary.

Finally, as discussed further in Step IV, application of this sampling protocol in wet-weather is recommended for most outfalls, as wet-weather sampling data may indicate a number of illicit discharge situations that may not be identified in dry weather.

Step II – Laboratory Coordination

All sampling will be conducted in accordance with an approved EPA Quality Assurance Project Plan ("QAPP"). A model QAPP is included as Attachment 2. While the QAPP details sample collection, preservation, and quality control requirements, detailed coordination with the appropriate laboratory staff will be necessary. Often sample events will need to be scheduled well in advance. In addition, the sampling team must be aware of the strict holding time requirements for bacterial samples – typically samples analysis must begin within 6 hours of sample collection. For sample analyses conducted by a commercial laboratory, appropriate coordination must occur to determine each facilities respective procedures and requirements.

Currently, the EPA-NE laboratory has a limited capacity for PPCP sampling, and any proposed PPCP sample events must be coordinated with the appropriate staff.

Step III – Sample Collection

Once those outfalls with dry-weather flow have been identified, concurrent sampling and analyses for surfactants, ammonia, and total chlorine (which can all be done through the use of field kits), in addition to bacteria (via laboratory analysis) should be conducted. When numerous outfalls with dry-weather flow exist, sample locations should be prioritized according to the criteria mentioned above. In addition, field screening using only the field kits may occur during the field reconnaissance. However, it must be emphasized that the concurrent sampling and analyses of bacteria, surfactant, ammonia, and total chlorine parameters is the most efficient and cost-effective screening method.

When first observed, the physical attributes of each outfall or sampling location should be noted for construction materials, size, flow volume, odor, and all other characteristics listed on the data collection form (Attachment 3). In addition, GPS coordinates should be collected and a photograph of the sample location taken. Whenever possible, the sampling of storm drain outfalls should be conducted as close to the outfall opening as possible. Bacterial samples should be collected first, with care to not disturb sediment materials or collect surface debris/scum as best possible. A separate bottle is used to collect a single water sample from which aliquots will be analyzed for surfactants, ammonia, and total chlorine. A sample for PPCP analysis is recommended to be collected last, as the larger volume required and larger bottle size may cause some sediment disturbance in smaller outfalls or streams. If necessary, a second smaller, sterile and pre-cleaned sampling bottle may be used to collect the surface water which can then be poured into the larger PPCP bottle. Last, a properly calibrated temperature/specific conductance/salinity meter should be used to record all three parameters directly from the stream or outfall. When flow volume or depth is insufficient to immerse the meter probe, a clean sample bottle may be utilized to collect a sufficient volume of water to immerse the probe. In such instances, meter readings should be taken immediately.

As soon as reasonably possible, sample aliquots from the field kit bottle should be analyzed. When concurrent analyses are not possible, ammonia and chlorine samples should be processed first, followed by surfactants analysis, according to each respective Standard Operating Procedures contained in Attachments 4, 5, and 6, or as appropriate based on the particular brand and type of field test kit being used. All waste from the field test kits should be retained and disposed of according to manufacture instructions. Results should be recorded, samples placed in a cooler on ice, and staff should proceed to the next sample location.

Upon completion of sampling and return to the laboratory, all samples will be turned over to the appropriate sample custodian(s) and accompanied by an appropriate Chain-of-Custody ("COC") form (an example form is included in Attachment 7).

Step IV – Data Evaluation

Bacterial results should be compared to the applicable water quality standards. Surfactant and ammonia concentrations should be compared to the thresholds listed in Table 1. Evaluation of the data should include a review for potential positive results due to sources other than human wastewater, and for false negative results due to chemical action or interferences. In the EPA-NE region, field sampling has indicated that the biological breakdown of organic material in historically filled tidal wetlands may cause elevated ammonia readings, as can the discharge from many landfills. In addition, salinity levels greater than 1 part per thousand may cause elevated surfactant readings, the presence of oil may likewise indicate elevated levels, and fine suspended particulate matter may cause inconclusive surfactant readings (for example, the indicator ampule may turn green instead of a shade of blue). Finally, elevated chlorine from leaking drinking water infrastructure or contained in the illicit wastewater discharge may inhibit bacterial growth and cause very low bacterial concentrations. Any detection of total chlorine above the instrument Reporting Limit should be noted.

Table 1 – Freshwater Water Quality Criteria, Threshold Levels, and Example Instrumentation [1]

Analyte/ Indicator	Threshold Levels/ Single Sample[3]	Instrumentation
E. coli [2]	235 cfu/100ml	Laboratory via approved method
Enterococci [2]	61 cfu/100ml	Laboratory via approved method
Surfactants (as MBAS)	≥ 0.25 mg/l	MBAS Test Kit (e.g. CHEMetrics K-9400)
Ammonia (NH_3)	≥ 0 .5 mg/l	Ammonia Test Strips (e.g. Hach brand)
Chlorine	> Reporting Limit	Field Meter (e.g. Hach Pocket Colorimeter II)
Temperature	≥83°F(28.3°C) and change 5°C(2.8°C) in rivers[2]	Temperature/Conductivity/Salinity Meter (e.g. YSI Model 30)

[1] The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA

[2] 314 CMR 4.00 MA - Surface Water Quality Standards - Class B Waters.

[3] Levels that may be indicative of potential wastewater or washwater contamination

Once dry-weather data has been examined and compared to the appropriate threshold values, outfalls or more discreet reaches of surface water can be selected for sampling or further investigation. Wet-weather sampling is also recommended for all outfalls, in particular for those that did not have flow in dry weather or those with dry-weather flow that passed screening thresholds. Wet-weather sampling will identify a number of situations that would otherwise pass unnoticed in dry weather. These wet-weather situations include, but are not limited to the following: elevated groundwater that can now cause an exchange of wastewater between cracked or broken sanitary sewers, failed septic systems, underdrains, and storm drains; increased sewer

volume that can exfiltrate through cracks in the sanitary piping; increased sewer volume that can enter the storm drain system in common manholes or directly-piped connections to storm drains; areas subject to capacity-related SSO discharges, and; illicit connections that are not carried through the storm drain system in dry-weather.

Step V – Costs

Use of field test kits and field instruments for a majority of the analytical parameters allows for a significantly reduced analytical cost. Estimated instrument costs and pro-rated costs per 100 samples are included in Table 2. The cost per 100 samples metric allows averaged costs to account for reagent refills that are typically less expensive as they do not include the instrument cost, and to average out the initial capital cost for an instrument such as a temperature/ conductivity/salinity meter. For such capital costs as the meters, the cost over time will continue to decrease.

Table 2 – Estimated Field Screening Analytical Costs [1]

Analyte/ Indicator	Instrument or Meter [2]	Instrument or Meter Cost/No. of Samples	Cost per Sample (Based on 100 Samples) [3]
Surfactants (as MBAS)	Chemetrics K-9400	$77.35/20 samples ($58.08/20 sample refill)	$3.09
Ammonia (NH_3)	Hach brand 0 – 6 mg/l	$18.59/25 samples	$0.74
Total Chlorine	Hach Pocket Colorimeter II	$389/100 samples ($21.89 per 100 sample refill)	$3.89
Temperature/ Conductivity/ Salinity	YSI	$490 (meter and cable probe)	$4.90

1 Estimated costs as of February 2011

2 The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA

3 One-time meter costs and/or refill kits will reduce sample costs over time

From Table 2, the field analytical cost is approximately $13 per outfall. Typical bacterial analyses costs can vary depending on the analyte, method, and total number of samples to be performed by the laboratory. These bacterial analyses costs can range from $20 to $60. Therefore, the analytical cost for a single outfall, based on the cost per 100 samples, ranges from $33 to $73. As indicated above, these costs will decrease slightly over time due to one-time capitals costs for the chlorine and temperature/conductivity/salinity meters.

Step VI – Follow-Up

Once all laboratory data has been reviewed and determined final in accordance with appropriate quality assurance controls, results should be reviewed with appropriate EPA staff to determine next steps. Those outfalls or surface water segments that fail to meet the appropriate water quality standard, and meet or exceed the surfactant and ammonia threshold values, in the absence of potential interferences mentioned in Step IV, indicate a high likelihood for the presence of illicit connections upstream in the drainage system or surface water. Whereas illicit discharges are quite variable in nature, the exceedance of the applicable water quality standard and only the ammonia or surfactant threshold value may well indicate the presence of an illicit connection. When available, the concurrent collection and analyses of PPCP data can greatly assist in confirming the presence of human wastewater. However, such data will not be available in all instances, and the collective data set and information regarding the physical characteristics of each sub-catchment or surface water reach should be used to prioritize outfalls for further investigation. As warranted, data may be released to municipal representatives, and should be accompanied by an explanation of preliminary findings. Release of such data should be fully discussed with the case team or other appropriate EPA staff.

References Cited

Boston Water & Sewer Commission, 2004, *A systematic Methodology for the Identification and Remediation of Illegal Connections.* 2003 Stormwater Management Report, chap. 2.1.

Pitt, R. 2004 *Methods for Detection of Inappropriate Discharge to Storm Drain Systems. Internal Project Files*. Tuscaloosa, AL, *in* The Center for Watershed Protection and Pitt, R., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*: Cooperative Agreement X82907801-0, U.S. Environmental Protection Agency, variously paged. Available at: http://www.cwp.org.

Instrumentation Cited (Manufacturer URLs)

MBAS Test Kit - CHEMetrics K-9400: http://www.chemetrics.com/Products/Deterg.htm

Portable Colorimeter – Hach Pocket Colorimeter II: http://www.hach.com/

Ammonia (Nitrogen) Test Strips: http://www.hach.com/

Portable Temperature/Conductivity/Salinity Meter: YSI Model 30: http://www.ysi.com/productsdetail.php?30-28

Disclaimer: The mention of trade names or commercial products in this protocol does not constitute endorsement or recommendation for use by the U.S. EPA.

EPA NE Stormwater Outfall Sampling Protocol – Attachment 1
Stormwater Outfalls With Indicators of Illcit Discharges

Note white, gray, or off-white filamentous bacterial growth

EPA NE Stormwater Outfall Sampling Protocol – Attachment 1
Stormwater Outfalls With Indicators of Illcit Discharges

Note off-white filametous bacterial growth

Note gray bacterial growth, suds, cloudy and gray plunge pool

Stormwater Monitoring Quality Assurance Project Plan
2011-2016

RFA #

Sampling Plan Acceptance

EPA OES Enforcement and Project Manager/Coordinator **Signature:**	**Date:**
EPA OEME Project Managers/Coordinator **Signature:**	**Date:**
EPA OEME QA Officer Charlie Porfert **Signature:**	**Date:**
EPA Chemistry Team Lead Dan Boudreau **Signature:**	**Date:**

1.0 Background

U.S. EPA Administrative Order 5360.1 requires that "all projects involving environmental monitoring performed by or for the U.S. EPA shall not be undertaken without an adequate Quality Assurance Project Plan (QAPP)." The purpose of this document is to describe the process used to develop, select, manage, and finalize stormwater monitoring projects. In describing this process, quality assurance goals and methods will be established, thus ensuring that the overall program and each monitoring project will meet or exceed EPA requirements for quality assurance.

The objective of these projects will be to collect data that is usable by EPA OES enforcement staff for enforcement actions and information requests. The primary focus of this project will be on urban water stormwater outfalls in the New England Region watersheds.

2.0 Sampling overview

Monitoring will be conducted on pre-scheduled days with the Laboratory. Samples will be retrieved from surface water, in stream or outfalls at suspected hotspots or areas that need further delineation. Sample sites will be located using GPS, with an accuracy goal of $\pm$ 1 meter and PDOP less than 6. Less accurate GPS reading or coordinates from maps will be accepted when site or other conditions do not allow $\pm$ 1 meter accuracy.

The primary focus of this sampling will be used to identify illegal discharges.
Results from the sampling will be used by EPA enforcement staff for enforcement purposes. For this project, sampling will be conducted according to EPA's Ambient Water Sampling SOP (Table 3). Volunteers and watershed association staff may assist in sampling. All procedures will be followed that are specified in Table 3. Parameter to be sampled will be predetermined by enforcement (OES) and OEME staff, based on data needs.

A. Locations

Site locations will be determined from field or desktop reconnaissance by project staff. Sample analyses will be predetermined based on conditions known about the sampling location prior to sampling. These may include data from previous sampling or from data collected from Mass DEP or local watershed associations. Any of the parameters listed in table 2 may be analyzed.

B. Analytical Methods and Reporting limits

Sample analyses will be conducted by EPA Laboratories.

This effort will test and compare the most appropriate analytical methods including, but not limited to; laboratory analysis, test kits and field analysis to determine the most effective and cost-efficient outfall and in-stream sampling approach.
Multiple and repeated testing will occur at each location to compare different method for identifying sewage contamination.

PPCPs, E.coli and enterococcus will be analyzed by EPA's Laboratory. Surfactants, ammonia, total chlorine will be analyzed with field test kits. Potential additional laboratory analyses include nitrogen (nitrate/nitrite), TSS, BOD, surfactants, ammonia and TPH. The Laboratory used

for each sampling event will be determined prior to sampling by the OEME Project Manager based on required analyses Laboratory availability and contract funds available.

Where available, a known concentration sample will be used to evaluate the performance of each test method. The known concentration sample will be processed in the field and Laboratory as a routine sample. The analyst or field technician will not know the concentration of the sample prior to analyzing and reporting the sample result. Sampling for PPCP testing will be done using extreme care not to contaminate the sample. No caffeine products should be consumed prior to sampling.

Table 1: Parameter specifications

Parameter (lab - equipment)	Preservation	Holding time
PH	None	Immediate
Temperature	None	Immediate
Sp Cond	None	Immediate
DO	None	Immediate
Total Phosphorus (EPA)	H_2SO_4 (pH <2) + Ice	28 days
TSS (EPA)	Ice	7 days
TSS (Alpha)	Ice	7 days
BOD (Alpha)	Ice	48 hours
Surfactants (Alpha)	Ice	48 hours
Surfactants (field kit – Chemetrics)	None	Immediate
Ammonia (alpha)	H_2SO_4 (pH <2) + Ice	28 days
Ammonia (test strips)	None	Immediate
TPH Petroleum ID (alpha)	Ice	7 Days to extraction 40 days after extraction
E. Coli (EPA)	Ice	6 hrs to lab
Enterococcus (EPA)	Ice	6 hrs to lab
PPCP	Ice (acidified in Lab)	7 day to extraction 40 days after extraction
Chlorine (Field kit – Hach)	None	Immediate

Table 2: Analytical References and Quality Control Goals

		Water Quality Criteria or Guidelines	Quality Assurance Goals		
Parameter (lab- equipment)	Reporting Limits	(MA or EPA)	Precision	Accuracy	Completeness
PH	4 to 10 units	6.5 - 8.3	0.02 unit	± 0.3 units	90%
Temperature	0 to +40°C	28.3°C	0.1 °C	± 0.15°C	90%
Sp Cond	0 to 100 mS/cm	NA	5 uS/cm	±10% cal std (µS/cm)	90%
DO	0.5mg/l to Sat	≥5 mg/l , ≥60% saturation	0.02mg/l	± .5 mg/l	90%
Total Phosphorus (EPA)	5.0 ug/l	NA	Field dup 30% RPD	MS 70-130%	90%
TSS (EPA)	5mg/L	NA	Field dup 30% RPD	See SOP	
TSS (Alpha)	5 mg/L	NA	Field dup 30% RPD	See SOP	90%
BOD (Alpha)	2 mg/L	NA	Field dup 30% RPD	See SOP	90%
Surfactants (field kit – Chemetrics)	0.25 mg/L[1]	0.25 mg/L	Field dup 30% RPD	TBD	90%
Ammonia (test strips)	0.25 mg/L[1]	1.0 mg/L	Field dup 30% RPD	TBD	90%
TPH Petroleum ID (alpha)	Variable	NA	Field dup 30% RPD	See SOP	
E. Coli (EPA)	4 col./ 100 ml	<=126 col./100 ml* <= 235 col./100 ml	±100 col/100ml or 30% RPD	N/A	90%
Enterococcus (EPA)	1 col/100ml	<=33 col./100 ml* <= 61 col./100 ml	±100 col/100ml or 30% RPD	See SOP	90%
PPCP	TBD	NA	Field dup 50% RPD	TBD	90%
Chlorine (Field kit – Hach)	0.02 mg/l	NA	Field dup 30% RPD	TBD	90%

Note
*Geometric mean Criteria
TBD = To be determined, Field methods and some colorimeter methods do not have accuracy criteria determined.
[1] Needs field verification to confirm

Table 3: Field and Laboratory References

Parameter	Analytical Method Reference	SOP reference
	Field References- 5/2005	
pH		
Conductivity		
Temperature		
dissolved oxygen	n/a	ECASOP-YSISondes9
Ambient water samples	n/a	ECASop-Ambient Water Sampling2
Chain of custody of samples	n/a	EIASOP-CHAINOFCUST
Sample login, tracking, disposition	n/a	EIASOP-ADMLOG14
	Lab. References- 5/ 2005	
Total Phosphorus (EPA)	EPA 365.3	EIASOP-INGTP8
TSS (EPA)	EPA 160.2	EIASOP-INGTSS-TDS-VRES5
TSS (Alpha)	EPA 160.2,SM2540D	SOP/07-29
BOD (Alpha)	EPA 405.1,SM5210B	SOP/07-13
Surfactants (field kit – Chemetrics)	Chemetrics	Draft
Ammonia (test strips)	Hach	Draft
TPH Petroleum ID (alpha)	8015B (M)	0-017
E. Coli (EPA)	SM9230	ECASOP- TC/EC Colilert2
Enterococcus (EPA)	SM9230	ECASOP-Enterolert1
PPCP	EPA 1694	TBD
Chlorine (Field kit – Hach)	Hach	TBD

*Specific conductance is the only parameter identified as non critical

Bottle list

Table 4: Bottle Sampling List

Parameter (lab - equipment)	Bottle	Preservation
Primary analyses		
E. Coli (EPA)	(2) 120ml or 250ml sterile	Ice
Enterococcus (EPA)		Ice
PPCP	1 Liter Amber	Ice (acidified in Lab)
Optional analyses		
Chlorine (Alpha)	500 ml	Ice
Total Phosphorus (EPA)	125 ml	H_2SO_4 (pH <2) + Ice
TSS (EPA)	1 liter	Ice
TSS (Alpha)	1 liter	Ice
BOD (Alpha)	1 Liter	Ice
TPH Petroleum ID (alpha)	2 -1 Liter Amber Glass tephlon lined	Ice
E. Coli (Alpha)	120 ml sterile	Ice
Enterococcus (Alpha)	120 ml sterile	Ice

C. Quality Control

Calibration:	EPA will calibrate its sondes according to the EPA sonde calibration SOP.
Field duplicate:	One duplicate sample will be collected per sampling event or approximately for every ten samples.
Trip Blank:	OEME Chemist will run appropriate QA samples for PPCP's. One blank sample will be collected for approximately every ten bacteria samples. Reported data that is less than 5 times the trip (field) blank concentration will be flagged.
QC Criteria:	Are specified in table 2, data not meeting this criteria will be reviewed by the Project Manager. Data that does not meet laboratory QA/QC criteria will be flagged by the laboratory.

D. Chain of Custody

Chain of custody procedures will follow the OEME/Investigations Office SOP (Table 3)

3.0 Data Review

EPA Microbiology data will be reviewed by the Biology QAO. Alpha generated microbiology samples will be reviewed by the OEME Project Manager. All field data and draft data reports will be reviewed by the OEME Project manager. Laboratory generated data (from Alpha and EPA) will be reviewed by the Chemistry Team Leader.

4.0 Data reports

Data reports will be reviewed by the Project Coordinator and the OEME Project Manager before a final report is release to the Enforcement Coordinator. Draft reports may be released without a complete review.

5.0 **Attachments** (Q:\share\RARE\QAPP)

1) Standard Operating Procedure Enterococcus (SM9230B), Multiple Tube Technique. SOP/07-01 *Alpha Analytical, Inc. May 28, 2005*

2) Standard Operating Procedure E. Coli (SM9213D). SOP/07-41 *Alpha Analytical, Inc. May 28, 2005*

3) Standard Operating Procedure MBAS, Ionic Surfactants. Draft SOP *EPA Laboratory. January 28, 2010*

4) Standard Operating Procedure Nitrogen Ammonia. Draft SOP *EPA Laboratory. February 10, 2011*

5) Standard Operating Procedure Total Chlorine. Draft SOP *EPA Laboratory. February 12, 2010*

6) Standard Operating Procedure TSS/ TVSS (SM2540 D, EPA 160.2). SOP/07-29 *Alpha Analytical, Inc. September 29, 2007*

7) Standard Operating Procedure BOD-5day, SBOD-5day, and cBOD-5day (SM 5210B, and EPA 405.1). SOP/07-13 *Alpha Analytical, Inc. September 29, 2007*

8) Standard Operating Procedure TPH 8015D – Modified 0-017 (EPA 8015D Modified) *Alpha Analytical, Inc. March 04, 2008*

9) Standard Operating Procedure determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma- Mass Spectrometry (200.8). SOP/06-11 Alpha Analytical, Inc. July 13, 200

10) Standard Operating Procedure Inductively Coupled Plasma – Mass Spectrometry (6020). SOP/06-10 Alpha Analytical, Inc. October 25, 2007

STORMWATER MONITORING

Field Collection Requirements (To be recorded at each site)

Sample-
Site Name _____

Time collected_____

Date collected_____

Inspection-
****Take picture at site****
Outfall diameter_____('na' if open stream)

Flow estimate_____('na' if open stream)

Odor_____

Color_____

Turbidity_____

Floatables_____

Other observations_____

_____

YSI Meter (calibrate in lab)-
Salinity_____

Temp_____

Conductivity (give both #'s)

_____

Location information-
Short description of where sample was collected at site_____

_____

_____

GPS_____

_____

Field Kits listed in the order they should be conducted in, include any applicable notes-

NH3 strip_____

Cl2 kit_____
Hach meter – (3 min wait)

Surfactant_____
Chemetrics K-9400 Blue box/detergent test kit

Additional Notes:

(Note any changes in weather conditions)_____

_____

_____

_____

_____

STORMWATER MONITORING (PAGE 2)

Field Equipment List

Waste Containers (2 total – clearly labeled):

1 liter amber plastic for surfactants/detergents kit waste
1 liter amber plastic for Cl2 kit waste

Sample Bottles (3 total for each sample location)-
120ml sterile – E.coli/entero
1 Liter amber glass: PPCP, *EPA* (Peter Philbrook)
120ml-250ml plastic – Field Kit Bottle – to be used on site for kits listed above

***Fill out chain of custody

In Carboy Container
☐Log book
☐COC forms
☐Extra sample bottles
☐Colored tape
☐Sharpies
☐Write-On-Rain Pens
☐Paper towels
☐GPS
☐Sampling plan & GPS locations
☐Regular length Powder Free Gloves
☐Squirt bottle of DI Water
☐Coolers with Ice
☐Waders/Boots
☐YSI multi parameter Meter

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS							REMARKS
SAMPLERS: *(Signature)*									
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION				

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

1-17985