

PHOSPHORUS 2011 INTERIM STRATEGY FACT SHEET

Why is phosphorus a water quality concern?

Phosphorus is a naturally occurring element that is essential to support plant growth. When present in excessive amounts, phosphorus contributes to a process called “eutrophication” that can impair both aquatic life and recreational use of Connecticut’s water resources. Eutrophication, or nutrient enrichment, is a serious threat to water quality in Connecticut. Excessive loading of phosphorus to surface waters as a result of discharges from industrial and municipal water pollution control facilities (WPCF) or non point sources such as runoff from urban and agricultural lands, can lead to algal blooms, including blooms of noxious blue green algae, reduction in water clarity, and in extreme cases depletion of oxygen, fish kills, and other impairments to aquatic life. Currently, 21 water body segments have been identified on *Connecticut’s List of Waters Not Meeting Water Quality Standards* where nutrient enrichment is a contributing cause of the impairment. Other water bodies that are not currently listed may also be impacted by nutrient enrichment and could cross the threshold to impaired status if nutrient loads from point and non point sources are not effectively managed.

Nutrient enrichment has also been identified as one of the most pressing water quality issues facing the nation as a whole. As a result, the federal Environmental Protection Agency has increased pressure on all states to take aggressive action to limit the quantity of phosphorus being discharged to surface waters. In Region 1, EPA has mandated that all New England states establish limitations on phosphorus in all wastewater discharge permits where the potential exists for the discharge to contribute to eutrophication and impair designated uses in downstream waters.

How is the strategy different from the one presented in June 2009?

As a result of discussions between the Department, stakeholders and U.S. EPA since June 2009, a revised strategy has been developed to address concerns raised during those discussions. In particular, the revised strategy addresses concerns regarding the protection of aquatic life in rivers and streams. The revised strategy uses best available science to identify phosphorus enrichment levels in waste receiving streams that adequately support aquatic life uses. The methodology focuses on significant changes in stream algae as the key aquatic life response to excess phosphorus loading. The methods used to develop this strategy were approved by the U.S. EPA in a letter dated October 26, 2010 as an interim strategy to establish water quality based phosphorus limits in non-tidal freshwater for industrial and municipal WPCFs national pollutant discharge elimination system (NPDES) permits until numeric nutrient criteria are established in CT water quality standards (WQS).

How does the strategy affect my facility?

The strategy assigns each wastewater treatment facility discharging to inland fresh water resources an average performance limit and seasonal (April through October) permit load based on a watershed analysis that identifies the in-stream load needed to protect aquatic life uses throughout the watershed. The watershed analysis takes into account all upstream sources contributing excess phosphorus at the point of discharge. Upon reissuance of the NPDES permit, the facility will be required to implement measures to achieve the proposed seasonal load assigned to that facility. Facilities that discharge to marine waters or large rivers such as the Connecticut, Thames, and Housatonic estuaries are not required to implement phosphorus limits at this time but will be required to continue monitoring of phosphorus in their discharge.

See Table 1 attached for seasonal cap loads for individual facilities.

What about controls on storm water and non point sources?

While the strategy does account for non point source loads in the analysis, reductions in phosphorus loading from agricultural and urban land runoff are not currently included. However, the Department is actively encouraging municipalities and developers to utilize low impact development (LID) techniques to accommodate changes in land use without increasing phosphorus loads to surface waters as a result of non point runoff. Reducing pollutant loads from existing municipal storm water systems is being pursued through implementation of storm water general permits. These requirements will also help reduce phosphorus loading.

How will the performance levels be translated into permit limits?

Average performance levels will be expressed as a maximum daily and an average monthly limit, effective seasonally during the period April through October. Limits will be calculated consistent with standard permitting practice assuming a coefficient of variation (CV) of 0.6% to account for effluent variability and a monitoring frequency identical to that required for nitrogen monitoring under the *General Permit for Nitrogen Discharges*. Each facility will also be assigned a seasonal loading limit or cap that is calculated by multiplying the average performance concentration by the average seasonal flow rate reported for the period 2001 through 2007. The cap load for facilities represents the actual average seasonal phosphorus load from that facility calculated using effluent monitoring data for that same period. Facilities that exceed the seasonal cap will be required to submit a plan to the Department describing actions necessary to reduce loads to below the cap level. See Table 1 attached for seasonal permit loads and average performance levels for individual facilities.

When will the permit load be put in place?

The permit load will be phased in with the reissuance of the NPDES permit for each facility. The Department currently has no plans to reopen current permits to incorporate the new requirements.

How long will my facility have to come into compliance with the new requirements?

A compliance schedule will be incorporated into the NPDES permit when the permit is reissued. Generally the schedule will provide two to four years to achieve compliance with the facilities getting the lowest limits going up to the four years.

Are phosphorus treatment projects fundable under the Clean Water Fund?

Planning costs to evaluate phosphorous treatment are eligible for a 55% planning grant. Design costs are eligible for funding under the Design Reserve for projects that can be expected to be reached for construction funding within three years. Construction costs for phosphorous removal are eligible for funding for projects that are identified on the current fundable construction project list.

TABLE 1 SEASONAL PERMIT LOADS and PERFORMANCE LEVELS

Regional Watershed	NPDES	Average Performance Level (mg/L)	Permit Load (pounds / day)
Bantam River Watershed	LITCHFIELD WPCF	2.39	9.97
Blackberry River Watershed	NORFOLK SEWER DISTRICT	Cap	3.45
Blackberry River Watershed	NORTH CANAAN WPCF	Cap	4.29
Factory Brook Watershed	SALISBURY WPCF	0.62	1.97
Farmington River Watershed	PLYMOUTH WPCF	0.5	4.38
Farmington River Watershed	WINSTED WPCF	1.49	17.16
Farmington River Watershed	BRISTOL WPCF	0.1	7.48
Farmington River Watershed	PLAINVILLE WPCF	0.2	3.49
Farmington River Watershed	NEW HARTFORD WPCF*	Cap	10.92
Farmington River Watershed	CANTON WPCF	Cap	24.8
Farmington River Watershed	FARMINGTON WPCF	2	70.11
Farmington River Watershed	SIMSBURY WPCF	2.5	46.95
Fivemile River Watershed	NEW CANAAN WPCF	0.19	1.47
Hockanum River Watershed	VERNON WPCF	0.14	4.56
Hockanum River Watershed	MANCHESTER WATER & SEWER	0.25	13.21
Housatonic River Main Stem Watershed	New Milford WPCF*	Cap	5.76
Limekiln Brook Watershed	DANBURY WPCF	0.1	7.55
Naugatuck River Watershed	TORRINGTON WPCF	0.4	17.29
Naugatuck River Watershed	QUALITY ROLLING AND DEBURRING INC.	0.7	0.53
Naugatuck River Watershed	THOMASTON WPCF	1	7.35

Regional Watershed	NPDES	Average Performance Level (mg/L)	Permit Load (pounds / day)
Naugatuck River Watershed	WATERBURY WPCF	0.2	34.26
Naugatuck River Watershed	NAUGATUCK WPCF	0.4	16.43
Naugatuck River Watershed	BEACON FALLS WPCF	1	2.67
Naugatuck River Watershed	SEYMOUR WPCF	0.7	7.54
Naugatuck River Watershed	ANSONIA WPCF	0.7	11.92
Norwalk River Watershed	RIDGEFIELD MAIN WPCF C/O OMI	0.1	0.52
Norwalk River Watershed	RIDGEFIELD RTE 7 C/O OMI*	1	1
Norwalk River Watershed	REDDING WPCF	Cap	1.08
Pomperaug River Watershed	SOUTHBURY HERITAGE VILLAGE WPCF*	Cap	10.92
Pootatuck River Watershed	NEWTOWN WPCF	Cap	4.01
Quinebaug River Watershed	THOMPSON WPCF	0.7	2.1
Quinebaug River Watershed	PUTNAM WPCF	0.7	8.41
Quinebaug River Watershed	KILLINGLY WPCF	0.7	18.23
Quinebaug River Watershed	PLAINFIELD NORTH WPCF	0.7	3.86
Quinebaug River Watershed	PLAINFIELD WPCF	0.7	2.51
Quinebaug River Watershed	GRISWOLD WPCA	0.7	2.92
Quinnipiac River Watershed	SOUTHINGTON WPCF	0.2	7.53
Quinnipiac River Watershed	CHESHIRE WPCF	0.2	4.06
Quinnipiac River Watershed	MERIDEN WPCF	0.1	8.71
Quinnipiac River Watershed	WALLINGFORD WATER & SEWER	0.2	8.95
Quinnipiac River Watershed	CYTEC INDUSTRIES INC.	0.1	1.49
Shetucket River Watershed	SPRAGUE WPCF	Cap	3.11

Regional Watershed	NPDES	Average Performance Level (mg/L)	Permit Load (pounds / day)
Willimantic River Watershed	STAFFORD WPCA	Cap	8.61
Willimantic River Watershed	UCONN WPCF	Cap	23.76
Willimantic River Watershed	WILLIMANTIC WPCF	Cap	18.63