Summary of Proposed Reclaimed Water Regulations

The proposed Reclaimed Water Permit Program and Standards Regulations (the "Reclaimed Water Regulations"). 314 CMR 20.00, are a new set of regulations governing the use of reclaimed water in Massachusetts. Reclaimed water is defined as domestic wastewater that is treated to a level such that it is suitable for beneficial reuse. Eliminating or reducing the concentrations of microbial and chemical constituents of concern through treatment and/or limiting public or worker exposure to the water via design or operational controls achieves making reclaimed water suitable and safe.

Massachusetts first implemented a reclaimed water program in 1999 through the development of interim guidelines that established the allowable uses as well as the treatment and monitoring requirements. Although many states have already implemented such programs with multiple uses, MassDEP decided at that time to limit the number of allowable uses since it was a new program here. The allowable uses, irrigation of golf courses and nurseries, toilet flushing and artificial aquifer recharge were considered as established techniques and therefore more likely to be employed in Massachusetts. We also developed what was referred to as the "Pilot Program" where other uses not specifically mentioned in the guidelines could be evaluated on a trial basis to determine whether they could be approved for general use.

Looking at the national experience, the MassDEP determined that reclaimed water has a greater potential for use in Massachusetts and looked to expand the number of uses. Increasing water demands along with the protection of stressed public water supplies makes reclaimed water a more attractive alternative. In developing a new program and draft regulations MassDEP relied on input form the following sources:

- In 2003 the Department contracted with the firm of CH2MHILL to organize a study of national practices and to make recommendations for Massachusetts. The lead preparer was Dr. James Crook, a nationally recognized expert on reclaimed water. The established programs in other states such as California, Florida, Arizona, and Washington were included in the analysis.

- In 2004 EPA produced a publication entitled: "Guidelines For Water Reuse". It reviewed national reclaimed water practices and recommended standards for various reclaimed water uses. Although only a guideline and not a regulation, it is a valuable document for states that are developing standards and/or regulations.

- MassDEP established a task group of over 24 members consisting of representatives from the public sector, environmental groups, consulting engineers, industry representatives, and Department personnel to assist in the development and review of the draft regulations.

The proposed regulations reflect both the national experience in reclaimed water as well as our own experience since the implementation of our interim guidelines in 1999. As with those guidelines, the major emphasis has been the promotion of reclaimed water

uses consistent with the protection of public health. The most sensitive uses incorporate a fecal coliform limit of non-detectable (ND) per 100 ml over continuous 7-day sampling periods, with no one sample to exceed 14 organisms per 100 ml, similar to the standards in the EPA guidance as well as the states of Florida and California. The level of treatment required, specifically secondary treatment, filtration, and disinfection, will result in a 5-log reduction of indicator viruses such as MS2 bacteriophage and poliovirus.

The draft regulations establish a system of classifications and standards specific to the proposed use. The highest standards apply to those proposed uses with greatest potential for exposure to the public. Again, all standards are similar to the EPA guidance and other states in the forefront of reclaimed water.

These draft regulations do not include standards for indirect aquifer discharge. Those standards are included in the proposed revisions to the Groundwater Discharge Permitting Program Regulations in 314 CMR 5.00. That regulation package will be available for public comment concurrently with the proposed reclaimed water regulations.

It should also be noted that although the draft regulations include treatment standards and effluent limits, the monitoring requirements are not part of these regulations. Instead, subsequent to the promulgation of these regulations, MassDEP will issue a guidance document on further implementing the provisions of the regulations. The proposed monitoring requirements will be included there and MassDEP will be requesting public input at that time.

The attached memo describes the key provisions of the draft regulations in greater detail. There is also an attachment that lists a number of possible scenarios and highlights the permitting and other regulatory requirements specific to each case.

Key Components of Proposed Regulation

New Permit Program

A new permit for a reclaimed water system will be established. Regulatory requirements and timelines will be similar to other MassDEP issued permits such as for the Groundwater Discharge Program. It should be noted that a reclaimed water permit will not be required if the project is for a groundwater discharge and is covered by the requirements of 314 CMR 5.00. Therefore, two separate permits will not be required for the same discharge.

Classification System

The proposed regulations establish three classes of discharge; Class A, Class B, and Class C. Class A is the most stringent since the public is more likely to come into contact with the reclaimed water. The most critical standards are the turbidity of 2 NTU and the fecal coliform standard of a median of non-detectable (ND) over continuous 7-day sampling periods with no one sample to exceed 14/100 ml. A low turbidity is critical to achieving efficient disinfection. This is comparable to the standards employed by California and Florida, two of the leading states in the use of reclaimed water. For Class B, where contact is less likely, the turbidity standard is 5 NTU with a fecal limit of a median of 14/100 ml over continuous 7-day sampling periods not to exceed 100/100 ml. Class C is the least stringent with a turbidity limit of 10 NTU and a fecal limit of 200/100 ml over continuous 7-day sampling periods with no one sample to exceed 800/100 ml.

Proposed Uses

As previously mentioned, the number of allowable uses has been expanded consistent with the national experience. For the most stringent classification, namely Class A, proposed uses include landscape irrigation such as golf courses, parks, playgrounds, and athletic fields, cooling water where a mist or aerosols are created, agricultural use where there is contact with the edible portion of the crop, and toilet flushing. It should be noted that the proposed standard for toilet flushing is more stringent than what was required by our previous guidance. However, existing uses will be allowed to retain their current effluent standards.

Class B uses include landscape irrigation where contact with the public is less likely such as ornamental nurseries and sod farms, cooling water where mists and aerosols are not created, and agricultural use for pasture land and for irrigation of unprocessed food crops where there is no contact between the reclaimed water and the edible portion of the crop.

Class C uses include industrial process water, silviculture, orchard/vineyard irrigation where there is no contact between the reclaimed water and the edible portion of the crop, and processed food crops that undergo commercial pathogen-destroying processing before human consumption.

Reuse Management Plan

This document describes the volume of reclaimed water that will be produced, the class of reclaimed water, the proposed uses at each location, the parties responsible for managing the use at each site, and the steps to ensure that the use at each location is consistent with the requirements of the reclaimed water regulations and the Massachusetts Uniform Plumbing Code. It is an important part of the overall project as it establishes the conditions upon which the use of reclaimed water is allowable and what steps to take if the water does not meet the appropriate effluent standards.

Service and Use Agreement

This is an agreement between the person who is issued the permit to operate a reclaimed water system and the person(s) who uses, sells, or distributes the reclaimed water produced by the permittee. This agreement will state that he use of reclaimed water shall comply with 314 CMR 20.000, the applicable discharge permit, the Reuse Management Plan and the Massachusetts Uniform Plumbing Code. It also requires the termination of the use and distribution of reclaimed water if said use and/or distribution is in violation of the terms of the agreement.

Consistency with National Standards

Throughout the entire process MassDEP has sought input from other sources with experience in reclaimed water, particularly the potential uses and the treatment/monitoring requirements. Our major goal continues to be promotion of reclaimed water as a reliable source of water in a manner that is protective of the public health. The 2003 study by CH2MHILL, 2004 EPA guidance, the review of other state programs, most notably California, Florida, Arizona, and Washington, and our Task Force input were the key resources that were used to develop our program. The proposed regulations reflect that body of information and our consistent with the national experience.

Monitoring Requirements

The proposed regulations contain treatment standards and effluent limits but not monitoring requirements, such as frequency of sampling both at the treatment facility and downgradient monitoring wells. Those will be included in a separate guidance document on the reclaimed water program, and we will request public input at that time.

Indirect Aquifer Recharge

The discharge of treated wastewater to the Zone II or IWPA of a well is termed as indirect aquifer recharge and is considered as a form or reclaimed water. The standards are not included in these regulations. Instead, they are contained in the draft revisions to the regulations for the Groundwater Permit Program, 314 CMR 5.00 which will be out for public notice at the same time as the reclaimed water regulations.

Permittee Producing Reuse Water				End User If Different From Permittee
Option	**Reuse Location Alternative Discharge Location**	**Alternative Groundwater Discharge Location**	**Permit Required**	**Requirements**
Aquifer recharge by means of a discharge to the ground within a Zone II, Interim Wellhead Protection Area or area outside the service area of a public water supply	On-Site or at a location within the ownership (fee or easement) of permittee	Yes, consistent with any groundwater discharge permit	Groundwater discharge permit issued by the Department pursuant to 314 CMR 5.00 incorporating more stringent effluent limits set forth in 314 CMR 5.10.	N/A
Irrigation by means of a subsurface soil absorption system approved by the Department	On-Site Or at a location within the ownership or co (fee or easement) of permittee	Yes, consistent with any groundwater discharge permit	Groundwater discharge permit issued by the Department pursuant to 314 CMR 5.00 incorporating more stringent of water quality or technology based effluent limits as set forth in 314 CMR 5.10	N/A
All other reuse where reclaimed water may be either discharged to the ground or beneficially reused	Both are within the ownership (fee or easement) of permittee	Yes, consistent with any groundwater discharge permit	Groundwater discharge permit issued by the Department pursuant to 314 CMR 5.00 incorporating standards and conditions for reuse set forth in 314 CMR 20.00 and for discharge set forth 314 CMR 5.00 Requires Reuse Management Plan	N/A

All other reuse where reclaimed water may be either discharged or beneficially reused.	Discharge Location within the ownership (fee or easement) of permittee) Reuse Location owned by third Party	Yes, consistent with any groundwater discharge permit	Groundwater discharge permit issued by the Department pursuant to 314 CMR 5.00 incorporating standards and conditions for reuse set 314 CMR 20.00 and for discharge set forth in 314 CMR 5.00. Requires Reuse Management Plan and Service and Use Agreement	No permit required Must comply with Reuse Management Plan, Service and Use Agreement and 314 CMR 20.00
Reuse with a sewer connection permit	Reuse Location within the ownership of permittee Alternate Discharge Location Discharge to sewer system for treatment and disposal by POTW	No	Reuse permit issued by the Department pursuant to 314 CMR 20.00 incorporating reuse standards and conditions set forth in 314 CMR 20.00 Requires Reuse Management Plan Requires sewer connection permit	N/A
Reuse with sewer connection permit	Reuse Location within the ownership of third party. Alternate Discharge location Discharge to sewer system for treatment and disposal by POTW	No	Reuse permit issued by the Department pursuant to 314 CMR 20.00 incorporating reuse standards and conditions set forth in 314 CMR 20.00 Requires Reuse Management Plan and Service and Use Agreement. Requires sewer connection permit	No permit required Requires compliance with Reuse Management Plan, Service and Use Agreement and 314 CMR 20.00

Reuse involving a facility with a NPDES Permit	Reuse Location within the ownership of permittee and discharge location within the ownership of the permittee	No NPDES discharge qualifies as alternative disposal location	Reuse permit issued by the Department incorporating reuse standards and conditions set forth in 314 CMR 20.00 Requires Reuse Management Plan Requires NPDES permit	N/A
Reuse involving a facility with a NPDES Permit	Reuse Location within the ownership of third party. Discharge Location within the ownership of the permittee	No NPDES discharge qualifies as alternative disposal location	Reuse permit issued by the Department pursuant to 314 CMR 20.00incorporating reuse standards and conditions set forth in 314 CMR 20.00 Requires Reuse Management Plan and Service and Use Agreement. Requires NPDES permit	No permit required Requires compliance with Reuse Management Plan, Service and Use Agreement and 314 CMR 20.00
Reuse involving a title 5 facility-grey water, drip irrigation, aquifer recharge	Reuse within the ownership or control of permittee	In accordance with Title 5	No permit required under 314 CMR 5.00 0r 314 CMR 20.00 Permit Required by Title 5	N/A
Reuse of uncontaminated stormwater for irrigation or toilet flushing	N/A	As required by Stormwater Management Standards and 314 CMR 9.00 and 310 CMR 10.00 an	No permit required	N/A