10.0 WATER MANAGEMENT ACT REQUIREMENTS

10.1 INTRODUCTION TO THE WATER MANAGEMENT ACT

These guidelines are designed to provide information regarding the implementation of the Water Management Act (MGL 21G) by DEP. Included is general information about the Water Management Program and permitting, internal guidelines and program policies used by the Department. The Water Management Act provides for the registration and permitting of ground and surface water withdrawals for any consumptive purpose. The Act also defines procedures for the declaration of water supply emergencies. The information provided herein is reflective of the statute and the regulations (310 CMR 36.00) as of September 1991.

Permit applicants and registrants are cautioned to monitor possible changes in the regulations and application forms. The Department views this program as one which will continue to evolve and will therefore modify procedures as experience dictates. As a result, prior to beginning work on an application, permit applicants should contact the Water Management Program to obtain the most up to date copy of the permit application forms.

The Water Management Act authorizes the Department to regulate the quantity of water withdrawn from the surface and ground waters of the Commonwealth. Withdrawals will be regulated to protect existing users and the environment and to ensure that competition for water will not jeopardize the reliability of any source. Through management of the surface and groundwater as one hydrologic unit, the Department will be able to protect the ability of present and future users to withdraw adequate quantities of water without overburdening or threatening the water resources of the Commonwealth.

The Act regulates withdrawals in excess of 100,000 gpd. This threshold volume may be adjusted downward at the discretion of the Department in the future in order to protect the waters of the Commonwealth. Withdrawals in excess of 100,000 gpd on average which occurred between 1981 and 1985 in one river basin could be registered with the Department and "grandfathered". Nonconsumptive uses are exempt from the requirements of the Act but do need to file a statement of non-consumptive use with the Department (see Section 10.11 of these *PWS Guidelines*). Registration was a one-time-only opportunity unless the Department reduces the threshold volume below 100,000 gpd. The registration period closed on January 4, 1988. All registrations will be reviewed for renewal in 1998.

Unregistered withdrawals in excess of 100,000 gpd will require a permit from the Department. Permits are required for increases of 100,000 gpd over a registered volume. Permit requirements apply to the withdrawer of water. Purchasers of water from a withdrawer do not need permits.

Permit application review considers the following:

1. The need for the water;
2. The availability of the requested withdrawal volume; and

3. The local impacts associated with the withdrawal.

For public water suppliers, the need for the water is established through the demand projections undertaken by the Department of Environmental Management's Office of Water Resources (DEM/OWR) and reviewed and approved by the Massachusetts Water Resources Commission. Before applying for a permit for increased withdrawal volume, a public water supplier should contact DEM/OWR to initiate new demand projections.

The availability of the requested withdrawal volume and the local impacts associated with the withdrawal are evaluated by the Department through safe yield analyses and a resource inventory integrated with local impact analyses. Applicants are required to provide detailed information regarding potential withdrawal impacts through the Source Approval and Withdrawal Permit application processes. The Department coordinates Withdrawal Permit application review with Source Approval review and solicits comment and recommendations from other EOEA agencies to ensure natural resource protection.

The application and applicable fee are to be sent to the Department and a copy of the application is to be sent to the local water resources management official in the municipality in which the withdrawal takes place. Applicants must complete the public notice and MEPA requirements and provide information required by the Department for action on an application. All requirements must be fulfilled by the completion date unless certain special circumstances apply. The Department will then typically have ninety days to rule on complete applications.

10.2 WITHDRAWALS REQUIRING A PERMIT

After the initial filing date of permit regulations for a river basin, no one may withdraw a volume of water above the threshold, or build anything that would require such a withdrawal, without a permit (or registration).

I. For those who withdraw water year-round, the threshold volume is 100,000 gallons per day on average over the course of the year, or 36.5 million unregistered gallons per year.

II. For seasonal water users (*i.e.*, golf courses, nurseries, and most agricultural uses), the threshold volume is 100,000 gallons per day on average for three consecutive months during the year, or 9 million unregistered gallons over a three-month period.

III. For cranberry growers, the threshold is 4.66 unregistered acres in production unless the following "best management practices" (BMPs) are employed, in which case the the threshold is 9.3 acres:

1. Bog construction laser leveled (or equivalent) to 6 inches

2. Implementation of tail water recovery system

3. Irrigation systems and water control structures (dikes and flumes) to Natural Resource Conservation Service (NRCS) standards

IV. Water suppliers or users who obtain all their water from another water system, such as the MWRA, do not need a permit.

The permit is also for your protection. It provides the Department with the information which is necessary to review the impact of other permit applications on your withdrawal.

10.3 FORM AND CONTENT OF WATER MANAGEMENT PERMITS

Water Management permits will typically run for 20 years in the initial round of permitting in a river basin. Each permit will include four 5-year blocks, for a total 20-year cycle from the Effective Date in each river basin and will be reviewed four times during the life of the permit at the end of each 5-year block. An applicant who applies in the first round of permitting in a river basin will receive a 20-year permit, an applicant who applies in the second round of permitting will receive a 19-year permit and so forth. All permits in a river basin will be reviewed together at the end of each 5-year block to ensure that the permitted volumes meet the needs of the permittee and that the permittee has met any conservation, Zone II delineation, wetlands monitoring or other special conditions contained in the permit.

All Water Management permits contain the following general information:

1. Permit number

2. River basin where the withdrawal is located

3. Name and mailing address of the permittee

4. Use to which the withdrawal will be put (*i.e.*, public water supply, golf course irrigation, industrial cooling)

5. Exact location (latitude and longitude) of all withdrawal points included in the permit and whether they are ground or surface water points

6. Number of days per year the withdrawal may take place

7. Expiration date of the permit

In addition, Water Management permits will include some or all of the following conditions as they apply to the permittee's situation:

1. *Authorized Withdrawal Volume* - outlines the average daily and total annual amount of water which may be withdrawn during each five-year block under the terms of

the permit. This section also reiterates any water withdrawal registered to the permittee under the Water Management Act.

2. *Authorized Withdrawal Points* - cites each withdrawal point (well or surface water body) from which the permitted withdrawal can be made, and states the maximum daily withdrawal rate for each source.

   The maximum daily withdrawal rate for public water supply wells will be based on the pumping rate that was used to delineate the zone of contribution (Zone II) for the well. If a Zone II delineation for a permitted source has not been approved by the Department prior to Water Management permitting, the maximum daily withdrawal rate will be set for that source when the Zone II delineation for the source is approved by the Department.

   In most cases the maximum daily withdrawal rates from the permitted withdrawal points will exceed the average permitted withdrawal rate. This provides the flexibility that permittees need to meet peak period needs (e.g., summer needs for public water suppliers), or operational contingencies (e.g., one permitted well must be closed for a period of time for maintenance or rehabilitation).

3. *Wetlands and/or Other Surface Water Resource Monitoring* - requires an annual physical inspection and reporting of plant species distribution and their relative abundance in wetlands near a permitted withdrawal point. The inspection is to be conducted by a trained wetlands professional such as a municipal conservation agent. The purpose of the wetlands monitoring is to document any long-term impacts that the permittee's withdrawal might have on local wetlands.

4. *Zone of Contribution (Zone II) Delineations* - requires that public water suppliers conduct a Zone II delineation in accordance with the *PWS Guidelines* for any groundwater point included in the permit that does not already have a DEP-approved Zone II delineation. The supplier must submit the Zone II delineation report to the Department for approval within three years of receiving the Water Management permit.

5. *Safe Yield of Surface Water Supplies* - requires that public water suppliers conduct a safe yield analysis for any surface water supply included in the permit that does not already have a suitable safe yield study. The safe yield study must be based on the drought of the 1960s or the drought of record for the surface water supply, whichever is more severe. In most cases, this will be the drought of the 1960's. Withdrawal volumes permitted from public surface water supplies will not exceed the safe yield for the surface water supply system determined through this study.

6. *Water Conservation Requirements* - All applicants must submit a water conservation plan with the Water Management Act permit application. If the Department determines that the applicant's plan meets the Department's requirement for

minimum conservation efforts for the applicant's type of water use, the plan will be attached as a condition of the permit. If the Department determines that the applicant's plan does not meet it's minimum requirements, the Water Management permit will include additional water conservation requirements that the applicants must fulfill as a condition of the permit.

For public water suppliers, the Massachusetts Water Resources Commission's Water Conservation Plan must be submitted as part of the permit application. The plan must include at least the minimum components of a water conservation plan as identified by the Water Resources Commission to meet the Department's minimum standards. For more information, see Section 10.7 of this chapter.

7. *Annual Reporting* - is required as a general condition of all Water Management permits. Permittees will receive reporting forms from the Water Management Program in December of each year and will be required to return the completed forms to DEP by the end of January. The annual reporting information includes the total volume of water withdrawn by the permittee by month, and a breakdown of withdrawals by source for each month. For public water suppliers, the Water Management annual report is part of the annual water quality statistics forms that are submitted to DEP in January of each year.

8. *Other Special Conditions* - may be included in the Water Management permit if there are special circumstances surrounding the application that need to be addressed in the permit.

10.4 RELATIONSHIP OF NEW SOURCE APPROVAL TO WATER MANAGEMENT PERMITS

I. NEW WELLS

The Water Management permits and New Source Approval are both required to put a new public water supply well on line. Department review of information required for New Source Approval addresses many of the issues considered in the Water Management permit application process. In order to ensure that a coordinated review occurs, Water Management permit applications must be submitted at the same time as the Source Final Report. See Section 4.0 of the *PWS Guidelines* for a detailed description of the information required for New Source Approval. Permit amendments applications can be filed at any time.

II. REPLACEMENT WELLS

When a new source is intended as a replacement for an existing registered source, it is possible that the Water Management registration can be amended if:

1. The replacement source is a public drinking water source within 50 feet of an existing approved, registered source. If the new source is a public drinking water source more than 50 feet from the existing registered source, the Department requires New Source Approval for the replacement source, and thereby triggers the need for a Water Management permit rather than a registration amendment;

2. The replacement source is a not a public water supply source and is within 50 feet of a registered source. If the replacement source is between 50 feet and 400 feet from the registered source, it may be considered as a registration amendment if no change is found in local environmental impacts.

   An applicant must show that a replacement source between 50 and 400 feet from the original source will not have new environmental impacts by providing a map of the appropriate scale showing the location of the source and the locations of any other groundwater users or sources of groundwater contamination within one half mile of the source and the existence of any surface water resources, including wetland within 1000 feet of the new source. If any of these vulnerable components are found, further drawdown analysis may be required. Any replacement source located more than 400 feet from the registered source requires a Water Management permit.

10.5 GROUNDWATER HYDRAULIC ANALYSIS (GHA)

The groundwater hydraulic analysis (GHA) provides information which is used to determine impacts to resources that are affected by fluctuations in the water table due to groundwater withdrawal.

The first step of Water Management GHA is to identify all components that are vulnerable to potential groundwater drawdown impacts (*i.e.*, surface water resources, including wetlands, other groundwater users, and contamination sources) and locate them on a map. When vulnerable components are found within a specified radius of the proposed withdrawal, the effect of the withdrawal on the vulnerable component must be predicted. The application contains worksheets which detail the information required to complete the analysis.

If a pumping test has been conducted according to Department guidelines for the proposed groundwater withdrawal, the pumping test report shall be submitted with the application. If a pumping test has not been conducted according to Department guidelines, the analysis must address the following:

1. If other groundwater users are located within 2640 feet of the proposed withdrawal, the GHA shall include a drawdown analysis which predicts the vertical drawdown in the area of concern. The vertical drawdown is predicted by using aquifer characteristics (transmissivity and storativity) and analytical drawdown techniques.

2. If surface water resources are located within 1000 feet of the proposed withdrawal, the GHA shall include boring logs that show stratigraphic sequence in the area of concern. Using this information, the applicant shall predict the impact of the proposed withdrawal on the surface water resource. As a condition for the Water Management permit, the permittee may be required to monitor wetlands or other surface water resources on an annual basis to assess actual impacts to the resource.

10.6 SURFACE WATER RESERVOIR SYSTEMS

The Department will generally permit a surface water withdrawal at the point where water leaves the reservoir, or the points where it leaves the last reservoir in a series of reservoirs within one river basin. In cases where the reservoir series lies in two river basins, the Department will consider the point of interbasin transfer as well. All public water suppliers operating more than one reservoir will be required to provide a map of their water withdrawal and storage system and to clearly document all their withdrawal points.

10.7 WATER CONSERVATION PROGRAMS AND IMPLEMENTATION

Water conservation is considered to be an integral part of the Water Management Program. Permit regulations require each applicant to submit a water conservation program and timetable of implementation as part of their application. Conservation in this context includes the full range of water supply conservation, demand management and water reuse activities and devices that are applicable to the particular withdrawal and its users. In most cases the applicant's program will be attached as a permit condition. The Department may require, as a permit condition, its minimum program in cases where the applicant fails to meet the Department's conservation standards. Conservation guidelines are outlined below.

I. PUBLIC WATER SUPPLIERS

DEP will accept the Water Resources Commission's Water Conservation Plan (part 1) from public water suppliers as a basis for developing a program suited to their particular system and clientele, provided it includes a timetable for implementation over the next 5 years. The plan need not have been submitted for approval by the Commission. Water conservation plans should also include anticipated water savings. Blank copies of the Water Resources Commission's Water Conservation Plan (part 1) can be obtained from the Water Management staff at (617) 556-1077.

The Water Resources Commission's Water Conservation Plan asks a public water supplier to identify actions they can take in several areas:

1. Meter installation and maintenance
2. Leak detection
3. Full-cost water pricing

4. Public information and education and employee awareness
5. Drought and emergency procedures
6. Efficient water fixtures
7. Water resources protection

Public water suppliers, particularly those in already stressed areas, are encouraged, and may be required, to go beyond those areas in developing a conservation program.

II. INDUSTRY

Industries will be expected to submit a 5-year program identifying those standard industry conservation and reuse practices that are applicable to their situation, along with a timetable that specifies who will do what, how it will be financed, and what water and dollar savings are anticipated. The Department recommends a full water audit of the facility to help develop this plan.

Because of the wide variation in industrial processes and water use, the Department has not developed industry-specific conservation guidelines. However, an industrial applicant is expected to address at least the following areas of water conservation, reuse, and demand management:

1. Identification of end uses of water withdrawn
2. Conduct of a water audit
3. An employee awareness program
4. Cooling water reuse and demand management
5. Process water reuse, conservation, and demand management efforts
6. Reduction in sanitary water uses
7. Maintenance procedures, including:

    a. Leak detection
    b. Steam blow-down procedures
    c. Use of steam condensate, multiple rinses, valves, and timers
    d. Automatic sprinklers
    e. Rescheduling to reduce peak water use

8. Installation of water efficient machinery or retrofit of existing machinery

III. AGRICULTURAL IRRIGATION

For agricultural water users, participation in the USDA Agricultural Conservation and Stabilization Service program for soil and water conservation plans will fulfill this requirement. Farmers who do not participate in this program will be expected to submit a plan that identifies all applicable options for reducing irrigation water as practiced by their industry. This should include a schedule showing the timetable for implementation, cost, and anticipated water savings.

Agricultural applicants are expected to address the following areas, as they apply to the particular crops grown and the individual's operation:

1. New or retrofitted irrigation and sprinkler systems
2. Maintenance practices such as rescheduling irrigation, leak detection, adjusting area which is irrigated routinely, pump inspection
3. Retrofitting existing irrigation systems for water efficiency, for example timers on sprinkler heads
4. Tilling and planting practices
5. Tailwater recovery
6. Ditch and canal maintenance and repair
7. Increased storage capacity
8. Employee awareness

IV. CRANBERRY GROWERS

Cranberry growers are expected to address the applicability of at least the following water reuse and conservation actions to their operation:

1. Flume and dike repair and maintenance to reduce leaks and more efficiently use water
2. Use of irrigation or sprinkler systems; timers and low-volume heads
3. tailwater recovery
4. Reuse of water, including pumping and ditching canals, and increased storage capacity
5. Regrading selected bogs
6. Coordinate harvest for sequential water use

V. GOLF COURSES

Owners will be expected to submit a 5-year plan that identifies all applicable options for reducing irrigation water, including a timetable of who will do what, how it will be financed, and what water and dollar savings are anticipated.

All turf managers are required to submit the information indicated as part of the conservation program required for permit applicants.

1. An employee awareness program for water conservation

2. Irrigation system maintenance program. The description should include:

    a. New or retrofitted irrigation and sprinkler systems which reduce water use (for example, installing timers on sprinkler heads)

    b. Maintenance practices such as rescheduling irrigation, leak detection, adjusting

area which is irrigated routinely, pump inspection

c. Efforts to check spacing of sprinklers so there is no overlap watering or watering of streets and sidewalks

d. Efforts to retrofit/replace plumbing in club house and other buildings with water saving fixtures (indoor use) and to install shut off valves for hoses (outdoor use).

3. Green maintenance efforts, including:

a. Efforts to regularly aerate and spike soil to reduce compaction and improve percolation of water into soil

b. Feasibility of planting turf that requires less water

c. Feasibility of installing tensiometers and/or gypsum blocks in drier areas to determine soil content, thus indicating any need for watering.

d. Feasibility of using reclaimed waste water for irrigation.

VI. OTHER APPLICANTS

Similar requirements will apply. Individual applicants should propose conservation methods which represent, at a minimum, standard practice for their type of water use.

10.8 CRANBERRY CULTIVATION

DEP has agreed that water withdrawals for individual cranberry growers could be estimated by an industry standard of 10 acre feet of water per bog acre in production per year. Individual registrations and permits will be verified based on the results of an industry-wide study conducted by the University of Massachusetts Cranberry Growers' Association, and independent verification of growers' bog acreage.

Cranberry growers' registration statements include a verification condition: "DEP will verify based on results on an industry-wide study of water withdrawal rates conducted by the University of Massachusetts Cranberry Experiment Station, and on documentation of acreage in production from 1981-1985." The Cranberry Experiment Station's study has recently been completed and the results are currently being reviewed.

10.9 SALT WATER WITHDRAWALS

This guidance applies to withdrawals of salt or brackish water from the ocean, a harbor, or the

tidal portion of a river which may be covered under the Water Management Act.

In the regulations for the Water Management Act, a water source is defined as a river basin. The Department did not require registration and will not require permitting in Basin 28, Massachusetts Coastal, which is salt water. Thus withdrawals from the ocean or an ocean harbor (such as Boston Harbor or Plymouth Bay) do not need to be permitted under the Water Management Act.

Withdrawals of brackish water from a river or stream within any other river basin may qualify as a nonconsumptive use, if the withdrawal water meets salinity criteria and the discharge is at or near the withdrawal point with substantially unimpaired quality and quantity. The Department will make such decisions on a case-by-case basis when a request for a determination of nonconsumptive use is filed by the withdrawer.

DEP's *Water Management Act Policy on Salt Water Withdrawals* (OWM Policy 96-01) states:

> Withdrawals from a virtually unlimited water source (the ocean) have been determined to have little potential for hydrologic impact on water management in the Commonwealth. DEP has determined that regulation of these withdrawals is not within the spirit of the Water Management Act and should not be regulated under the Act.
>
> The registration regulations for the Water Management Act defined a "water source" as one of the 27 freshwater river basins. The Department did not require registration statements to be filed for saline withdrawals, nor does the Department require persons withdrawing saline water for consumptive uses in excess of the threshold volume to file permit applications pursuant to the Act. Withdrawals of fresh water from ground or surface water sources in quantities greated that the threshold volume are regulated by the Act.
>
> Requirements for Determination of Non-Applicability
>
> The Department will not require water withdrawal permits for any withdrawals where the water to be withdrawn has a specific conductivity great than 1,000 umhos/cm.
>
> The following ranges for measurement of specific conductivity will be used to determine the applicability of the Act:
>
> Fresh water: 1 to 1,000 umhos/cm
> Brackish water: 1,000 to 10,000 umhos/cm
> Saline water: 10,000 to 100,000 umhos/cm
>
> Where questions exist, the Department will make a determination on a case-by-case basis about whether a particular withdrawal of water located within the ocean or any harbor, embayment, or estuary, or within groundwater adjacent to any of these surface waters requires a permit.

Persons withdrawing water in excess of the threshold volume within any of said areas who desire such a determination shall request from the Department a determination of applicability of the Act. Said requests shall be made in letter form, and shall include a description or map depicting the exact location and nature of the withdrawal. Said request shall also include the results of water samples from the withdrawal location. Water samples shall be taken at high tide and tested for specific conductivity by a Massachusetts or EPA certified laboratory. Test results shall be reported in the units umhos/cm. The Department will review the test results and make a determination of the applicability of the Act based on the above-noted ranges of specific conductivity. The Department's determination shall be made in writing and shall be issued to the person making the request.

In cases where the Department determines that the water to be withdrawn will be brackish or saline, no permit will be required under the Water Management Act. Where the Department determines that the withdrawal will be of fresh water, the permitting requirements of MGL c. 21G and 310 CMR 36.00 will apply.

10.10 FOR MORE INFORMATION ON THE PERMIT APPLICATION PROCESS

For information and assistance on the application process, contact:

Water Management Program
Department of Environmental Protection
One Winter Street
Boston, MA 02108

The Massachusetts Department of Environmental Management, Office of Water Resources, may be able to provide information on water demand, minimum streamflow requirements, and local and regional water management plans. Contact them at:

Office of Water Resources
Department of Environmental Management
100 Cambridge Street
Boston, MA 02202

Water Management Permit regulations (310 CMR 36.17 - 36.44), and Timely Action Schedule and Fee Provisions Regulations (310 CMR 4.00) are available at:

State House Bookstore
Room 116, State House,
Boston, MA, 02133

10.11 NONCONSUMPTIVE USE PROVISIONS

Water Management Act regulations state that "withdrawals of water that in the opinion of the

Department constitute a nonconsumptive use are exempt from…the Act". Nonconsumptive use is defined as "use of any water which results in it being discharged back into the water source at or near the withdrawal point, in substantially unimpaired quality and quantity."

Department policy allows individuals to apply for nonconsumptive status if water quality and quantity are not affected by their activity. The Department does not accept NPDES discharge permit conditions as proof of no substantial effect.

The following outlines the Department's policy regarding various types of water use and whether those uses will be considered for nonconsumptive use status. Applicants whose type of water use is considered nonconsumptive according to these guidelines must still file a nonconsumptive use application.

I. HYDROELECTRIC GENERATING FACILITIES

There are three types of hydropower facilities:

1. *Run of the River Facilities* - Generally consist of a dam and turbine generating set. River water is passed through the facility with basically no water loss taking place. These facilities are considered nonconsumptive.

2. *Pressure Relief Facility* - Placed in a water transmission line to bleed off excess energy from the hydraulic system. Water is simply passed through the facility. These facilities are also nonconsumptive.

3. *Canal-fed Hydromechanical Facilities* - The oldest type encountered in the Commonwealth. The facility is fed by water coming from a canal, generally fed by a river. The facility discharges into another canal or body of water down gradient from the facility. These facilities are nonconsumptive because they take almost no water from the river and because the distance between removal from the river and return is typically not great.

II. PUMPED STORAGE FACILITIES

Pumped storage facilities differ from other hydropower generating facilities in several important respects. A pumped storage facility withdraws a large quantity of water from a river or large water body and pumps it upgradient into a reservoir. The water is released back to the same water source, but not necessarily to the same location. Significant water loss can take place through system leakage and reservoir evaporation. There is a chance this leakage could leave the source from which the water was taken.

Site selection is based in part on an extensive leak analysis. Information on leakage rates should be available from the individual nonconsumptive applicant, along with information on evaporation rates from the reservoir. From these, the Department can determine if water loss is sufficient to require permitting or if nonconsumptive status is appropriate.

Any water loss that constitutes an interbasin transfer should be considered consumptive.

III. SKI AREAS

Large quantities of water are used by ski areas for snow-making operations. The water used is primarily changed in phase. The water source is typically a pond or a man-made reservoir.

Water from a specific surface or a ground water source is distributed over the land. A fraction of the artificial snow will be lost to evaporation. The bulk will end up as surface water runoff, but it is typically discharged at a different location than where it was withdrawn. Snow-making is therefore considered consumptive use.

IV. INDUSTRIAL COOLING

There are several types of industrial cooling processes that transfer heat from the process to water, then to the air, the water source or the ground.

1. *Evaporative Cooling* - considered consumptive and must be permitted because water mass is lost by design. This includes cogeneration facilities and many industrial processes.

2. *Non-evaporative Cooling* - heat energy is transferred from the process to water, which is then discharged. These types of processes introduce thermal energy into the water, potentially affecting its quality, but do not consume water. In the case of nuclear and fossil fuel power plants, with only thermal discharge, the Department will consider individual nonconsumptive applications that demonstrate no significant water quality impacts.

   In many other industrial non-evaporative cooling processes, chemicals are discharged as well. The Department will consider these to be automatically affecting water quality, and thus must be permitted.

   Some non-evaporative cooling processes can demonstrate no use of chemicals. Where the cooling water is from groundwater, which is then discharged to surface water, the withdrawal is considered consumptive. In cases where there is no change from ground to surface water, the Department will make an individual determination on whether the withdrawal is consumptive based on water quality information provided by the applicant.

V. FISH HATCHERIES

The source of water for fish hatcheries is typically from combined groundwater and surface water points. In some instances, the sole source is groundwater. In a fish

hatchery, some water loss stems from surface evaporation and leaky tanks and/or stock ponds. Of more importance are potential water quality impacts downstream from any fish hatchery. Therefore, water use by fish hatcheries is considered consumptive.

VI. RESERVOIR OPERATION AND RIVER MANAGEMENT

In some cases, reservoirs are operated to maintain seasonal flow rates downstream of the control structure. This form of river management is considered nonconsumptive, as it does not affect quality or quantity.

VII. SAND AND GRAVEL OPERATIONS

Sand and gravel operations use water to wash sand and gravel. The discharge water is often laden with sediment and debris. For this reason, these withdrawals are consumptive and must be permitted unless closed-loop water recirculation systems are employed which reduce water consumption below the permitting threshold.

10.12 FILING A REQUEST FOR A DETERMINATION OF NONCONSUMPTIVE USE

In order for the Department to determine if the use is nonconsumptive, the applicant must provide the following information to the Department on or before the filing date for permit applications:

1. The applicant's name, address, and phone number
2. The amount of the withdrawal, the rate at which it will be withdrawn, and if it is a current or proposed withdrawal
3. A 7.5 minute USGS quadrangle map showing the exact location of the withdrawal and discharge point(s)
4. The use of the withdrawn water
5. The water quality of both the withdrawn water and the discharged water; and

All reports must include the following certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete."

_____ _____ _____

Signature of Applicant Title Date

Additional information may be requested by DEP as necessary. The Department will issue a written response to the applicant stating whether or not the use is accepted as noncon-sumptive.

Applicants for nonconsumptive status may want to file a permit application for the proposed withdrawal in the event of a negative determination by the Department.

10.13 METERING REQUIREMENT UNDER THE WATER MANAGEMENT ACT

Metering is a condition for most registrants and permittees under the Water Management Act to provide proper accounting of registered and permitted withdrawal volumes. It is required in accordance with the following principles stated in section 3 of the Act:

- To ensure an adequate volume of water for all citizens of the Commonwealth, and;

- To assure comprehensive and systematic planning and management of water withdrawals and use in the Commonwealth.

Metering is required as a condition of registration or permit as follows:

1. Metering of withdrawals will be required for all municipal and industrial systems covered by the Act.

2. Metering should be done at the source in addition to customer-service metering, discharge point metering or other metering.

3. To obtain a verified withdrawal registration for golf course withdrawals from stationary withdrawal points, metering will be required. Metering requirements may be phased in over a period of years, as determined by the Department.

4. Water use logs will be acceptable in most cases to verify agricultural withdrawals.

5. The meter must comply with the latest revisions of the American Water Works Association standards (C700 Series) and/or specific state or local requirements.

6. Where an AWWA standard for a meter is not available, the user must demonstrate to the satisfaction of the Department that the meter is capable of measuring not less than 95% and not more than 105% of the water that passes through the meter. If the owner does not have suitable means for testing, he/she can submit to the Department a certificate from the manufacturer showing that the meter has been tested for accuracy of registration.

7. Annual calibration of meters is required with documentation provided in each annual report.

8. The Department will continue to consider requests for exceptions to this policy from groups representing a particular category of water withdrawers.

10.14 WATER SUPPLY EMERGENCIES

The Department policy outlining when, why, and how public water suppliers can declare a water supply emergency under the Water Management Act has been included in these *Guidelines*. For more information on declaration of water supply emergency, suppliers should contact the Water Management Program Point of Contact in their DEP Regional Office.

Declaration of a State of Water Supply Emergency
DWS Policy 87-05

The purpose of this document is to state Department policy and procedure with regard to declaring, terminating, and extending a state of water supply emergency pursuant to MGL c. 21G, sec. 15-17 (Water Management Act). The emergency provisions allow DEP to declare a state of water emergency at the request of a public water supplier and to condition the declaration so as to require measures to end the emergency situation. This policy should be read together with the Massachusetts Water Management Act, which contains many important provisions not included in this policy.

POLICY

The following policy and procedure shall be followed when processing a petition from a public water supplier for a declaration of a state of water supply emergency in accordance with M.G.L. C.21G, ss 15, 16, and 17.

The power granted the Department by the Water Management Act does not include the authority to impose a state of water supply emergency on a public water supplier who does not request it. In cases where no request is made by the public water supplier, and the Department finds upon its own investigation that there is an existing or impending shortage of water which endangers public health, safety, or welfare, the Department may issue an administrative order requiring the public water supplier to take specific action to relieve the situation under Chapter 111, section 160.

The Department may also issue orders pursuant to Chapter 111, section 160 when it finds upon investigation that measures are necessary to ensure the delivery of a fit and pure water supply to all consumers.

DEFINITIONS:

"Allowable withdrawal rate" means the maximum day yield divided by the peaking factor.

"Average day demand" means the average daily demand on a water supply system over any one month.

"Contingency plan" means a written plan establishing operating procedures for adequately handling water supply emergencies. The plan shall include provisions for emergency water supply in the event of a sudden loss of existing sources and for a progressively stringent schedule for limiting water use during seasonal and extended dry periods. For the purposes of this policy the Drought and Emergency Procedures/Planning section of the Water Resources Commission's Water Conservation Plan will serve as a contingency plan.

"Department" means the Department of Environmental Protection.

"Division" means the DEP Drinking Water Program.

"Drought" means a condition of dryness due to lower than normal precipitation, resulting in effects such as reduced stream flows, reduced soil moisture and lowering of the potentiometric surface in wells.

"Emergency connection" means any emergency connection either approved pursuant to M.G.L. c. 21G or authorized by law to provide a necessary and adequate water supply and shall include connections to other existing supply systems, the obtaining of water directly from a new source or a previously abandoned source, or the obtaining of greater amounts of water from an existing source.

"Existing demand" means the average daily consumption over the past two years, or such lesser period as the Department may determine to be adequate to provide an accurate figure, based on meter readings.

"Existing water service connection" means an active water supply service including connecting piping and a water meter.

"Increase in existing connection" means any activity which will increase the anticipated consumption of water at an existing water meter by more than 10% above the existing demand at that service over the past two years.

"Maximum day yield" means the pumping capacity of all sources based upon 24-hour pumping.

"Moratorium" means restrictions on new connections to a water system.

"New connections" means any new water supply service which requires installation of a new (not replacement) meter, except any particular connection mandated by a court order.

"Peak day demand" means the peak demand in any given month.

"Peaking factor" means two times the existing demand on a system unless a different number is indicated by the historical record.

"Public water supplier" means any city, town, district, water company, public agency or authority of the Commonwealth or its political subdivisions which operates a public water system.

"Public water system" means a system for the provision to the public of piped water for human consumption, if such system has a least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year.

"Unaccounted for water" means water withdrawn by a purveyor from a source and not

accounted for as being delivered to customers in measured amounts.

"Water" means all water beneath or on the surface of the ground whether wholly or partly within the Commonwealth.

"Water bank" means an allocation method which requires that water withdrawn from new water sources, increases in existing water sources, or water recovered through demand management, or other means be divided between new users and the reduction of a water deficit situation.

"Water demand increase" means the projected consumption of water for any new connection or increase in demand in an existing connection recommended to the Department by the municipality for approval. Projections shall be made consistent with good planning practice and shall be verified based on the actual meter reading during the first six months of full operation.

"Water demand decrease" means the projected water savings to be achieved through actions including but not limited to termination of services, reduction in services, installation of permanent water conservation devices, detection and repair of leaks and rehabilitation of mains. Projections of water savings shall be made consistent with good engineering practice and must be measurable and verifiable.

"Water supply emergency" means one of the following situations:

"Short-term water supply emergency" - The problem has been identified and can be remedied quickly and is not expected to recur. (Short-term water supply emergencies do not include water supply emergencies that occur repeatedly for the same reason. This type of water supply emergency indicates a more serious, longer-term problem and will be classified as an interim or a long-term water supply emergency.)

"Interim water supply emergency" - Additional sources have been identified, are in the process of being developed, or water sources which had been previously closed will be brought back on line.

"Long-term water supply emergency" - Where no permanent solution to the state of water supply emergency has been identified.

DEPARTMENT POLICY ON WATER EMERGENCIES

It is the Department's policy to:

- Ensure that no area served by a public water system will be without water.

- Ensure that public health, safety, and welfare concerns are adequately addressed during any Department declared state of water supply emergency.

- Encourage water conservation as a means to control demand.

- Encourage and assist public water suppliers to develop or expand existing water sources where water supply deficiencies exist which cannot be eliminated through conservation.

- Assist in the resolution of emergency water supply problem(s), and to guide public water suppliers in meeting long-term water supply needs within each area served by the public water system.

- Work with public water suppliers to develop specific and practicable contingency plans and water supply emergency responses and wherever feasible, prior to the issuance of an order by the Division, solicit recommendations from public water supplier seeking an emergency declaration.

- Encourage public water suppliers to develop and implement drought management and contingency plans which become progressively more stringent depending on the seriousness of the state of water supply emergency, the time needed to provide permanent solutions, the availability of emergency relief, environmental impacts on both the users experiencing the emergency as well as other users who depend, or may in the future depend, on any emergency connection.

- Encourage public water suppliers to take advantage of the technical and financial assistance programs offered by the Commonwealth.

- Ensure that any public water supplier receiving water through an emergency connection is taking all reasonable steps to reduce the demand for water for the duration of the state of water supply emergency.

LOCALLY IMPOSED WATER USE RESTRICTIONS

The Department recognized that public water systems may wish to impose mandatory water use restrictions during periods of high water demand without requesting a formal emergency declaration from the Department. Through the enactment of the appropriate municipal bylaw, suppliers may control and mitigate periods of high demand, typically occurring during the summer months.

Restrictions that may be imposed through this bylaw include odd/even day watering bans, prohibitions on filling swimming pools, and the use of automatic sprinkler systems. Persons violating the bylaw's restrictions are subject to civil fines. Before enacting local legislation, municipal counsel should be consulted to ensure the legislation is enforceable

and legally valid.

The Department requires all public water systems establishing a mandatory restriction on water use to notify the Department in writing within 14 days of its effective date. In its notice to the Department, the public water system shall include all appropriate regulations, bylaws, or ordinances establishing and imposing the restriction.

If a public water system is experiencing complex system problems affecting its ability to consistently provide an adequate supply of water, adopting and implementing a bylaw may not address the problem. The Department strongly suggests that systems experiencing such problems should consider requesting from the Department a declaration of a state of water supply emergency, pursuant to MGL 21G.

DEP has developed a model bylaw for communities looking to establish enforceable limitations. For copies of the model bylaw, please contact the Water Management Program.

PETITIONING FOR A DECLARATION OF A STATE OF WATER SUPPLY EMERGENCY

Pursuant to MGL 21G section 15, any public water supplier may petition the Department for a declaration of a state of water supply emergency. The Department will review any petition submitted by a public water supplier for a declaration of a state of water supply emergency.

It is the policy of the Department not to approve a petition for a state of water supply emergency from any public water supplier who represents a public water system where a water source has been closed on local authority and that closure is a primary cause of water shortage unless the closure is approved by DEP.

CONTENTS OF A PLAN TO BRING ABOUT AN END TO A STATE OF WATER SUPPLY EMERGENCY

Pursuant to MGL 21G section 15, public water suppliers who petition the Department for a declaration of a state of water supply emergency must, on DEP request, submit for review and approval, their plan for bringing about an expeditious end to the state of water supply emergency. For the purpose of this policy, public water suppliers will be required to submit as their plan a completed Water Resources Commission Conservation Plan and a written discussion of each of the following:

1. Past water supply emergency situations with this supply system and the cause(s) of such situations.

2. Causes of the present alleged state of water supply emergency.

Situations for which the Department may declare a state of water supply emergency include but are not limited to one or a combination of the following:

a. Mechanical failure or similar type of emergency which results in an inability to meet average daily demand for water, including inability to maintain storage tanks, loss of power, loss of pumping capacity, loss of storage capabilities, or major breaks or leaks.

b. Water Quality Emergencies - contamination of the public water supply, the distribution system or of storage tanks and inability to meet average daily demand with remaining public water supplies.

c. Inadequate source, inadequate distribution system capacity, inadequate storage capacity or drought. This also includes seasonal water shortages which repeatedly affect the same water system.

3. Historical and up-to-date water demand and supply data including a comparison of existing average day demand, maximum day demand, and fire flow requirements with current system pumping capacity, storage capabilities and system safe yield;

4. Estimated length of time that the water supply emergency is expected to exist or continue (six months, one year, or more) , and the factors upon which the predicted end of the emergency is based;

5. Any bans or restrictions that are to be implemented immediately or in the future as a result of the state of water supply emergency;

6. A statement describing how the community affected by the emergency will be kept informed of the state of water supply emergency, (through newspaper advertisements, flyers, bill stuffers, etc);

7. Any rehabilitation projects to upgrade or expand the system that are planned or in progress, including a discussion of how any of these projects may help relieve or eliminate the state of water supply emergency;

8. Identification of any possible interconnections with another public water supplier and their viability. A public water supplier, requesting approval for an emergency connection under MGL 21G section 16, must also indicate whether approval of a Water Bank is being sought.

DECLARING A STATE OF WATER SUPPLY EMERGENCY

Upon receiving a petition for a declaration of a state of water supply emergency from a supplier, the Department may declare a state of water supply emergency if it finds that

the demand for water exceeds the availability of water by 10% or there is an existing or impending shortage of water in part or in all of the area served by the public water system which presents a threat to public health, safety or welfare. The Department will limit the applicability of any state of water supply emergency to the city or town submitting the petition or to the geographical area served by the public water system submitting the petition. Water suppliers whose service area crosses Department regional boundaries shall make submittals to the DEP Boston Office, where all determinations will be made that would normally be made by the appropriate DEP Regional Office, provided, however, that the DEP Boston Office shall consult with the DEP Regional Office prior to making a determination.

PROCEDURE

Verbal Authorization

Whenever the Department determines that the protection of the public health requires an immediate declaration of a state of water supply emergency, it may verbally authorize a water supply emergency. A verbal authorization of a water supply emergency will be valid for no more than 10 business days unless, and on the condition that the water supplier complies with the procedures for written authorization set forth below. A written declaration shall be issued as soon as possible after the verbal authorization. The Regional Director will notify Water Management Program staff within 48 hours of issuance of a verbal declaration of a state of water supply emergency.

Under a verbal authorization of a water supply emergency the Department may authorize the public water supplier to augment supply and implement bans or restrictions on certain water uses. Enforcement measures may include fines where authorized by by-law or ordinance and the disconnection or shutoff of service at the meter or curb cock.

Written Authorization

1. The public water supplier should submit to the DEP Regional Office in the region where the water supply is located, a written petition for a declaration of a state of water supply emergency along with a plan to bring about an end to the state of water supply emergency.

   The DEP Regional Office may accept an outline of the plan provided that the public water supplier includes a brief discussion of specific action that may be taken immediately to relieve the state of water supply emergency and agrees to submit a complete plan within 30 days of any declaration of a state of water supply emergency.

2. If time and the conditions permit, a meeting will be scheduled between the public

water supplier and the DEP Regional Office, prior to any declaration of a state of water supply emergency, to discuss the situation in detail and to design conditions and orders accordingly.

3. If it is not possible to arrange a meeting prior to the issuance of a declaration of a state of water supply emergency, the DEP Regional Office may proceed with the following steps, provided that such a meeting with the public water supplier is scheduled. All water supply declarations of a state of water supply emergency and orders issued in this manner should be considered interim measures, and may be changed upon meeting with the public water supplier.

4. The DEP Regional Office will review the petition and the plan and make a final determination as to:

   a. Whether a state of water supply emergency should be declared and;

   b. Whether any such state of water supply emergency should be classified as an interim, short term, or long term state of water supply emergency.

5. If the Regional Director finds that a state of water supply emergency exists the Department will take the following steps.

   a. The DEP Regional Office will draft a declaration of a state of water supply emergency and order. Any orders included in the declaration of a state of water supply emergency will be specific to the type of water supply emergency and the situation. Requirements may include but are not limited to:

      (1) A detailed analysis of existing and future supply and demand

      (2) A plan for short-term measures to provide immediate relief to the water supply emergency

      (3) A plan for long-term actions designed to prevent recurrence of the emergency

      (4) A program for water auditing including installation of water meters

      (5) A contingency plan

      (6) A plan to implement system rehabilitation

      (7) Implementation of a leak detection program

      (8) Development of new sources or construction of storage

b. The Department will specify the actions the public water supplier is authorized to take under the declaration of water emergency. These may include but are not limited to:

(1) Bans or restrictions on certain water uses including any necessary enforcement provisions

(2) Provisions to augment supply

(3) The initiation of water bank as a mechanism to restrict or limit issuances of new water connections

c. The provision of any order pursuant to a declaration of a state of water supply emergency shall be approved by the Regional Director prior to issuance. A copy of the final declaration of a state of water supply emergency must be forwarded to the Water Management Program staff in Boston.

If the emergency is the result of unusual circumstances or will require restrictions on future connections to the water system, a copy of the draft declaration shall be forwarded to the DEP Boston Office for consultation prior to its issuance.

d. The Regional Director will notify the Water Management Program, the Legislative Liaison, the Commissioner's Office, the Public Affairs Office (PAO), the Massachusetts Civil Defense Agency and the Department of Public Health at least 24 hours prior to issuance of a written declaration of a state of water supply emergency.

e. The Legislative Liaison will notify appropriate legislators and PAO will prepare a press release if appropriate.

f. The DEP Regional Office will prepare and send the final declaration of a state of water supply emergency to the public water supplier, and the Chairman of the Board of Selectmen or the Chairman of the City Council and the Mayor or the chief official of the water company or district, as the case may be. The declaration of a state of water supply emergency and order will be sent to the public water supplier by certified mail, return receipt requested, or by hand. The public water supplier may be informed of its contents by telephone prior to delivery.

6. If the Regional Director finds that no state of water supply emergency exists the DEP Regional Office will inform the public water supplier. The DEP Regional Office may request that the public water supplier provide regular updates should the situation warrant such action.

TERMINATING A STATE OF A WATER SUPPLY EMERGENCY

All declared states of water supply emergency will remain in effect for the entire six month period following the date of its issuance unless revoked by the Department. The declaration will be revoked if the Department finds that:

1. The demand for water no longer exceeds available supply;

2. The public health, safety, or welfare is no longer endangered by an existing or impending water shortage in part or all of the area to which the state of water supply emergency applies; and

3. The public water supplier has demonstrated to the Department that each of the following has occurred:

    a. The facts relied upon by the Department in its declaration of the state of water supply emergency have been altered or no longer exist.

    b. The public water supplier has successfully implemented its plan for bringing about an end to the state of water supply emergency and plans for preventing similar occurrences have been developed.

    c. The public water supplier has complied with, or is taking action to comply with all orders issued with the Department's declaration of a state of water supply emergency to the satisfaction of the Regional Director.

PROCEDURE FOR TERMINATION

1. The DEP Regional Office will review the existing state of water supply emergency with the public water supplier.

2. The public water supplier will demonstrate that all conditions of the water supply declaration of a state of water supply emergency and order have been met and that all conditions for terminating a state of water supply emergency have been met.

3. The DEP Regional Office will make a recommendation to the Regional Director to terminate the state of water supply emergency.

4. When the Regional Director determines that the demand for water no longer exceeds available supply or that public health, safety or welfare is no longer endangered by a water supply shortage, the DEP Regional Office will be notified. The regional DEP Regional Office will notify the public water supplier and the chairman of the Board of Selectmen or the Chairman of the City Council and the Mayor or the chief official of the district or water company, as appropriate, of the determination in

writing. A copy of the termination notice will be forwarded to the Water Management Program staff in Boston.

a. The Regional Director will notify the Water Management Program, the Legislative Liaison, the Commissioner's Office, the Public Affairs Office (PAO), the Massachusetts Civil Defense Agency and the Department of Public Health at least 24 hours prior to issuance of a written termination of a declaration of a state of water supply emergency.

b. The Legislative Liaison will notify appropriate legislators and PAO will prepare a press release if appropriate.

c. The regional DEP Regional Office will prepare and send the termination of a declaration of a state of water supply emergency to the public water supplier, and the Chairman of the Board of Selectmen or the Chairman of the City Council and the Mayor or the chief official of the water company or district as appropriate. The termination of a state of water supply emergency and order will be sent to the public water supplier by certified mail, return receipt requested, or by hand. The public water supplier may be informed of the termination by telephone prior to delivery.

EXTENSIONS TO A STATE OF WATER SUPPLY EMERGENCY BEYOND THE 6-MONTH PERIOD

No state of water supply emergency will remain in effect for more than six months in the aggregate in any 12-month period unless the Department determines that the demand for water continues to exceed available supply by 10% or that a longer state of water supply emergency is required to protect the public health, safety, and welfare in all or in part of the area served by the public water system, and that the public water supplier has demonstrated the following to the Department.

1. The problem which caused the state of water supply emergency has not been corrected. (The DEP Regional Office should consider changing the type of water supply emergency to an interim or a long term water emergency should it be determined that the problem will take longer to remedy or is not reparable.)

2. Records indicate that existing and future demand cannot be met with existing water supplies.

3. For interim or long term water supply emergencies, the new source has not been identified or if it has, it has not been put on line or it is still not adequate to meet existing demands.

An extension will be considered on the Department's own initiative or at the request of

the public water supplier.

Before considering whether to continue a state of water supply emergency the Department will require the public water supplier to submit an update to his plan to bring about an end to the state of water supply emergency.

In reviewing the need for an extension DEP will take into consideration efforts taken by the public water supplier to reduce consumption, implement long term plans, and to comply with any requirements or orders.

PROCEDURE

1. If the Department determines that an extension to the state of water supply emergency is required, or if the public water supplier requests an extension of the state of water supply emergency, the public water supplier should submit to the DEP Regional Office an updated plan to bring about an end to the state of water supply emergency PRIOR to the end date of the a state of water supply emergency in effect at that time. (If the public water supplier is requesting an extension then it should include a written request with the plan.)

2. Generally a meeting should be held between the public water supplier and the DEP Regional Office to discuss the request and the Department's determination of necessity and the progress has been made toward abating the emergency by the public water supplier since the last declaration of a state of water supply emergency. Documentation of such progress should be provided by the petitioning public water supplier.

3. Following the meeting or discussion with the water supplier, the DEP Regional Office will make a recommendation to the Regional Director and the DEP Boston Office to continue, amend or to allow the declaration to expire.

4. If the Regional Director and the DEP Boston Office determine that a longer state of emergency is required to protect the public health the DEP Regional Office will amend the declaration of water supply emergency and the following notice procedures will be followed:

    a. The Regional Director, in consultation with the DEP Boston Office, will approve the water supply declaration of a state of water supply emergency and Order prior to issuance. A copy of the final declaration of a state of water supply emergency will be forwarded to the Boston Office for the files.

    b. The Regional Director will notify the Water Management Program, the Legislative Liaison, the Commissioner's Office, the Public Affairs Office, the Massachusetts Civil Defense Agency, and the Department of Public Health at

least 24 hours prior to issuance of the amended declaration of a state of water supply emergency.

c. DEP's Legislative Liaison will notify appropriate legislators and PAO prepare press release if appropriate.

d. The DEP Regional Office will draft and send the amended declaration of a state of water supply emergency to the public water supplier, and the Chairman of the Board of Selectmen or the Chairman of the City council and the Mayor, or the Chief Official of the water company, or district, as appropriate. The declaration of a state of water supply emergency will be sent by certified mail, return receipt requested, or by hand. The DEP Regional Office may inform the public water supplier of its contents over the phone prior to delivery.

5. If the Regional Director and the Boston Office determine that no basis for continuing a state of water supply emergency exists they will forward their decision to the DEP Regional Office. The notice procedure outlined above in 4b - 4d (with a denial substituted for the amended declaration in 4d) shall be followed. The DEP Regional Office may require the public water supplier to provide regular reports of progress or problems.

POLICY ON EMERGENCY INTERCONNECTIONS, TAKINGS, PURCHASE AND SALE OF WATER

During a state of water emergency, declared under section 15, if the Department has approved a plan designed to bring about an expeditious end to the emergency, a water company, public agency or authority of the Commonwealth or its political subdivisions which is the operator of a public water system affected by the emergency may, for such periods of time as may be approved by the Department, not to exceed six months cumulatively in any twelve month period, take by eminent domain under chapter 79 the right to use any land for the time necessary to use such water, or purchase water from another public water system; provided, however, that during a state of emergency affecting the water system of the Massachusetts Water Resources Authority, such power of eminent domain may be exercised by the Division of Watershed Management of the Metropolitan District Commission. Any operator of a public water system may, for such periods of time and may be approved by the Department, sell to any water company, public agency or authority of the Commonwealth or its political subdivisions, which has been authorized to make purchases of water pursuant to this section, such volumes of water as may be available for sale from time to time.

No taking, purchase or sale shall be made pursuant to this section unless the Department issues an order pursuant to M.G.L. C.21G, section 17 authorizing the taking, purchase or sale.

Should the Department approve a taking, purchase or sale, authorization for that action will be given in writing.

The Department may permit the use of emergency connections. The Department will review emergency connection options with the petitioning public water supplier and the donor community (if applicable). In cases where an emergency connection between two public water suppliers is necessary, the Department will issue an Order to the donor public water supplier requiring that the distribution of a specified amount of water to the public water supplier found to be in a state of water supply emergency. The Department's order will require the public supplier receiving water through an emergency connection to take all reasonable steps to reduce the demand for such water for the duration of the state of water supply emergency. All parties must take steps to establish that the use of any emergency connection will not endanger or threaten to endanger the public health, safety or welfare of persons served by the donor community and that all conflicting or competing uses of the proposed emergency interconnection are considered and mitigated where possible.

In the Department's review of emergency water supply options, the Division's regional staff will prioritize supply augmentation options as follows:

1. Connection to an existing public water supply system
   a. activation of an existing connection.
   b. creation of a new connection.

2. Activation of an abandoned or reserve public water supply

3. Development of a new water supply source in the area served by the public water supplier (permanent or temporary)

4. Development or discovery of a new water supply source in a nearby community in the same river basin. Many public water suppliers have entered into agreements to draw from water supply sources owned or operated by other communities during water supply emergencies. It is the Department's policy to encourage public water suppliers to regularly review and update these agreements.

5. Development of an out of basin source.

PUBLIC NOTICE

During a state of water supply emergency, the Department will ensure that the people served by the public water system are notified of the emergency and kept informed of its status. In addition, the Department, through the Boston office, will maintain and update a monthly tracking list of public water systems operating under a state of water supply emergency and make the information available to Legislators, appropriate state agencies,

and the Massachusetts Civil Defense Agency. The public water supplier will notify persons served by the public water system of the state of water supply emergency either through newspaper announcements, bill stuffers, or electronic media and forward copies of any water supply declaration of a water supply emergency to the City Council, the Board of Selectmen, or chief official of the water company, or district, etc and provide monthly updated information regarding the state of water supply emergency to the public for as long as the state of water supply emergency exists.

LIMITATIONS ON CONNECTIONS TO A WATER SYSTEM

It is the policy of the Department to restrict new connections to a water system only in extreme circumstances when it is determined that other measures will not adequately address public health and safety. In each case, the Department will carefully evaluate the facts to ensure that limiting connections to a water system is justified and a necessary means to protect the public health and safety. The public water suppliers will be ordered to take actions necessary to correct the system deficiencies. The Department will use water banks to respond to source related or source and storage related emergencies which will require several months to remediate from the time that new connections are actually halted. A water bank is a flexible method of control which can be shaped to address the situation in each public water supply. Credits to the bank are made for conservation, leak repair and new source development with limited withdrawals allowed under certain circumstances to accommodate hardship cases and limited growth.

The Department will use moratoriums on new connections to respond to emergencies resulting from pressure or storage problems. A moratorium is a prohibition on new connections to the water supply. The area impacted by the moratorium should be limited to that portion of the system where the problem exists or which could contribute to the problems experienced. The area subject to the moratorium should be modified whenever information is available which demonstrates that new connections to portions of the distribution system will not exacerbate existing problems. For either a water bank or a moratorium, the Department shall direct the public water supplier to determine the method used to restrict new connections and how allocation decisions are made. The Department will provide oversight and technical assistance but will not become involved in determining how hardship and growth decisions will be made. In cases where an emergency interconnection to another public water system is being used, the Department will not allow water from that system to be credited to a water bank.

For the initial sixty (60) days from the time the Department authorizes or orders a water bank to be in place, a moratorium will be instituted. During the first thirty (30) days of the moratorium the public water supplier will be directed to provide the Department with a plan detailing the implementation details of the water bank. The bank should be fully implemented by the end of the sixty (60) day moratorium. The Department may provide the public water supplier with examples from other communities.

As part of a petition for a declaration of a state of water supply emergency, the public water supplier may request to allocate water by means of a water bank or to use a moratorium or the Department may independently require implementation of either a water bank or moratorium. In the first case, the public water supplier will characterize the emergency and provide the information required below. In the latter case, the Department may, depending on the circumstances of the case, 1) issue an emergency declaration with a connection moratorium pending submittal of the additional information within thirty (30) days or 2) issue an emergency declaration and reserve the decision on the moratorium until after evaluation of the additional information to be submitted within thirty (30) days.

The public water supplier should include or the Department may request, a discussion of the nature of the emergency which shall include a characterization of the emergency as source dependent, storage dependent and/or distribution system dependent.

If the emergency is **SOURCE** dependent the water supplier shall:

1. Calculate the maximum day yield in million gallons per day of existing sources based on 24-hour pumping. The allowable withdrawal rate shall be determined by dividing the maximum day yield by the peaking factor (typically 2, unless pumping records demonstrate clearly that another multiplier is more appropriate). Actual consumption shall be compared to the allowable withdrawal rate for the preceding two years. An emergency in which there is a continuous exceedance of allowable withdrawals for a significant portion of the past two years, based upon the historical record and the opinion of the DEP Regional Office, shall be eligible for consideration for a water bank after the information requested in b,c,d and e [p. 214] has been reviewed. A graph showing the maximum day yield, peak demand and the allowable withdrawal rate must be provided.

2. Provide information to support the projected increase or decrease in supply over the next three years.

3. Provide information to support the projected demand increase for the next 12 months based upon construction which is already underway or authorized.

4. Provide information to support the projected demand, with use restrictions in place, for the next three years.

    a. assuming no water bank
    b. assuming a water bank

5. Compare the anticipated supply and demand based upon the history of supply and demand for the past two years and the projections for the next three years.

If the emergency is **STORAGE** dependent, the water supplier should:

1. calculate recommended storage for fire protection;
2. define existing storage; and
3. project both for the next three years and compare results.

If storage is significantly less than the recommended levels and new storage cannot be built for several months from the time new connections to the water system are restricted and the fire chief documents a concern regarding the ability to meet fire flow needs and there is also a source deficiency as described above, the Department may approve or impose a water bank. If there is no source component to the situation, then a moratorium may be authorized or imposed.

If the emergency is **DISTRIBUTION** system dependent, the water supplier should:

1. Define the severity, extent and location of the system problem, and document the recurrence over a period of time.
2. Define any risks posed by the problem - pressure, backflow/fire.
3. Define the deficiency in the distribution system known or suspected to be the cause of service problems.
4. Project a timetable for corrective action.
5. Project the extent and severity of the problem with and without water bank restrictions.
6. Define the area to be impacted by the water bank.

If upon review of the above information the Department finds that pressure in all or a portion of the system is deficient, the Department may authorize or impose a moratorium.

Upon reviewing a petition for a state of water supply emergency declaration (which may or may not include a request from the public water supplier to declare a water bank or moratorium) the Department may find that implementation of a water bank or moratorium is necessary to protect the public health and safety. The Department may issue an order to the public water supplier to maintain a water balance log and to implement a water bank whenever it deems control of new water connections to be necessary under the circumstances described above.

The Department will establish a water bank or moratorium only in cases of long term water supply emergency when it determines that the public water supplier needs time to finance and construct additional facilities.

In the opinion of the Department a water bank or moratorium is warranted only when the projected supply and demand analysis indicates that there will be no relief from the causes of the water supply emergency for a substantial period from the time that new connections are actually restricted.

PROCEDURE FOR DEPARTMENT APPROVAL OF A WATER BANK OR MORATORIUM

1. The DEP Regional Office will review all the information submitted. Upon review of the information available the chief will make a recommendation to the Regional Director and the Division Director.

2. If the Regional Director and the Division Director determine that a water bank or moratorium is necessary they relay their decision to the DEP Regional Office, the DEP Regional Office will draft the water supply declaration of a state of water supply emergency and Order to include a water bank. Notice of determination of the status of a water bank or moratorium shall be provided in the manner prescribed in the approval or denial of an extension of a declaration of water supply emergency.

3. The duration and terms of any water bank or moratorium shall be determined by the Regional Director and Division Director at the recommendation of the DEP Regional Office.

ORDERS AND CONDITIONS OF A WATER SUPPLY DECLARATION OF A STATE OF WATER SUPPLY EMERGENCY AND ORDER

Under MGL 21G section 17, the Department is authorized to issue orders, applicable within or outside the area in which the water emergency exists during a state of water supply emergency . The Department will issue all declarations of a state of water supply emergency in the form of an order. Orders may require the public water supplier to take the specific action outlined in his plan to bring an end to the state of water supply emergency or other actions deemed necessary and appropriate by the Department.

The Department may also issue orders requiring public water supplier to:

1. Establish priorities for the distribution of any water or quantity of water use and to implement any priority scheme established. Any such scheme may include establishing a priority system for issuing and denying building permits, based on the priority given to existing services.

2. Permit any public water supplier to reduce or increase by a specified amount or to cease the distribution of the water, or to distribute a specified amount of water to certain users as specified by the Department, or to share any water with other water supply systems. This includes orders to take land by eminent domain, or to buy water from another public water supplier, or to require a public water supplier to sell water.

3. Direct any public water supplier to reduce, by a specified volume, the withdrawal or use of any water, or to cease the withdrawal or use of any water.

4. Require the implementation of specific water conservation measures whether or not mentioned in the plan. Water conservation measures may include but are not

limited to:

a. Within 30 days of the date of issue of the water supply declaration of a state of water supply emergency and Order, a completed plan to bring about an end to the state of water supply emergency.
b. Bans and restrictions on the use of water
c. A water audit (includes metering of service connections)
d. Leak detection and repair activities and programs
e. Public education activities and programs
f. Retrofit programs for public and private buildings
g. Measures for protecting existing water supplies
h. Other drought/emergency related measures designed to conserve water

5. Mandate the denial, for the duration of the state of water supply emergency, of all applications for withdrawal permits within the areas of the Commonwealth to which the state of water supply emergency applies.

In addition, the Department may issue orders requiring the water suppliers to undertake any actions not specifically mentioned above, which, in the opinion of the Department, are necessary to ensure delivery of fit and pure water.

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