COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RESOURCE PROTECTION

Water Management Act Program

WATER WITHDRAWAL PERMIT APPLICATION AND GUIDELINES

WM03

UPDATED

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SECTION A - INTRODUCTION

General Information

This application package provides the forms and an explanation of requirements necessary to apply for a water withdrawal permit (WM03) under the Commonwealth of Massachusetts - Water Management Act (WMA) (MGL c. 21G) Program. The application package includes information pertinent to the completion of the forms and permit application.

Submittal of the WMA Program (WMAP) water withdrawal permit application (WM03) does not relieve an applicant from complying, where appropriate, with the Massachusetts Environmental Policy Act (MEPA) or Water Resources Commission approval under the Interbasin Transfer Act for a transfer of water between basin(s) (watersheds).

About the Water Management Act

The WMA authorizes the Department of Environmental Protection (DEP) to regulate the volume of water withdrawn from the Commonwealth's surface and groundwater resources to ensure adequate water reserves for current and future water needs and to protect habitat. The purpose of the WMA is to comprehensively manage both surface and groundwater resources of the Commonwealth as a single hydrologic watershed unit. The WMA also gives DEP authority to act and provide oversight to drinking water supply emergencies.

Key Provisions of the WMA

The WMA has three (3) key provisions:

o A registration program that recognized certain water withdrawals that existed before the WMA went into effect. The ability to register ended on January 4, 1988.

o The WMA created a permit program for water withdrawals begun after 1985, that average more than 100,000 gallons per day.

o The WMA created a procedure for the declaration of a public water supply emergency.

Important Information About Permits

- Who is required to get a WMA Permit?

In accordance with the WMA, no one may withdraw a volume of water above the threshold volume, or commence construction of a building or structure that would require such a withdrawal, without a WM03 permit. For cranberry bog construction, commencement of construction is when the organic layer is placed for the plants. A WM03 permit is required when:

- The threshold volume is 100,000 gallons per day (0.1 mgd) on average over the course of the year, or 36.5 million gallons per year.

- The threshold volume is 100,000 gallons per day on average for three consecutive months or 9 million gallons over a three-month period for some users, such as agricultural, golf courses and nurseries.

- For cranberry growers - cranberry cultivation thresholds are based on the acreage in production rather than metered water withdrawals. For old style bogs, the threshold acreage is 4.66 acres using a maximum quarterly water usage of 6.0 acre-feet. For new style bogs that implement water conservation best management practices, the threshold acreage is 9.3 acres based on a maximum quarterly water usage of 3.0 acre-feet.

- Purchase or sale of water - Please note that the purchase or sale of water to another entity may require modification of an existing registration or permit.

- When is a WM03 Permit not required?

Entities that purchase water do not require a WM03 permit. The provider of the water is required to meet WMAP permit requirements.

For those who have a water withdrawal that the DEP determines to be non-consumptive, a WM03 permit is not required. Outlined in Section E. are the requirements necessary for the DEP approval for a determination of non-consumptive use.

Key Points

The following are some key points concerning WMAP permits.

1. WM03 permits are reviewed every five (5) years by DEP - WMAP staff.

2. WM03 permits may be amended. To amend a permit, a permit holder may file an application for a permit amendment (BRP WM02) with DEP for any changes except for an increase in volume.

   An increase of withdrawal volume greater than that previously allocated requires submittal of an application for a permit.

3. DEP will issue a WM03 permit for an annual average daily withdrawal rate. DEP has the option to set seasonal peak withdrawal volumes and limits on withdrawals from individually permitted sources of supply.

4. Permit conditions may include: the installation of water meters that require recording of volumes and scheduled calibration, water conservation requirements, specific performance standards, along with wetlands delineation and monitoring requirements.

   Public water systems may have additional permit conditions that include; Zone 2 delineations for groundwater sources; firm yield determinations for surface supplies; and the implementation of wellhead and/or surface water protection measures.

5. Registration and permit holders are required to submit an Annual Report Form that details volume withdrawal information annually to DEP.

SECTION B. - SUBMITTAL OF THE WM03 PERMIT APPLICATION

Filing Guidelines

To apply for a WM03 permit, applicants must complete the appropriate application forms outlined on the checklist that is included in this section for submittal to the appropriate DEP Regional office. The location of DEP - Regional Offices and a list of communities reporting to that office is included in Appendix A.

Commonly asked questions are as follows:

1. How much is the application fee for a WM03 permit?

   Information regarding the application fee is provided on the DEP web site. www.mass.gov/dep/files/permits/fees.htm.

2. Where is the Primary Permit Location? Where is the Reserve Copy Location?

   Primary Permit Location:
   Provide 2 copies to:

   Department of Environmental Protection
   Regional Office - Appendix A
   Water Management Program

   Reserve Copy Location:
   Provide 1 copy to:

   Chief Elected Official in the community where the withdrawal point(s) is located.

3. What are the timelines?

   Written timelines for permit application review are outlined in Section C - The Permit Application Review Process. Appendix C provides a Water Management Act Program permit processing graphical timeline.

   DEP has ninety (90) days from the completion date to rule on an application but may take an additional nine (9) months in certain circumstances.

4. How much is the annual compliance fee?

   Annual compliance fees are on the DEP Website: www.mass.gov/dep/files/permits/fees.htm.

   Failure to pay the permit's annual compliance fee will result in suspension or revocation.

5. How long is the WMAP permit in effect?

   WMAP permits are provided in twenty (20) years cycles for the watershed or river basin. Permit end dates for each watershed or river basin are provided in Appendix B. WM03 permits could be valid for up to twenty (20) years from the initial application date. WMAP permits end on the date of each watershed or river basin cycle.

6. How can I avoid the most common mistakes made in applying for this permit?

   a. Do not perform an aquifer pump test prior to consulting with DEP regional staff in order to determine the need and required level of evaluation.

   b. Applicants for non-potable groundwater withdrawals must meet the requirements for pump testing by completing Form H - Groundwater Hydraulic Analyses for Non Potable Wells. Applicants using water for public water supply purposes are required to conform to the DEP – DWP Source Approval Process.

      If additional pump testing is required, the applicant has six (6) months to complete any pump test requirements and complete Form H, from the date of submission of the permit application.

   c. Prepare and complete Public Notice requirements as outlined in Section B.

   d. Provide an explanation of water demand estimates.

   e. Develop a water conservation plan according to the instructions provided with the permit application form.

7. What are the regulations that apply to the WM03 permit? Where can copies be obtained?

   The regulations include, but are not limited to:

   a. Water Management Act Regulations, 310 CMR 36.00
   b. Timely Action Schedule and Fee Provisions, 310 CMR 4.00.
   c. These documents may be obtained at the DEP website or purchased at:

   State Bookstore (in State House)
   Room 116
   Boston, MA 02133
   617-727-2834

   State Bookstore
   436 Dwight Street, Room 102
   Springfield, MA 01103-1317
   413-784-1376

Send appropriate fee in the form of check or money order made payable to:

8. How is the completed application submitted?

   Confirm that the appropriate items shown on the checklist are complete.

   Send two (2) copies of the application package with one (1) copy of the DEP Transmittal Form to DEP; and one (1) copy of a Reserve Copy application to:

   Department of Environmental Protection
   Water Management Act Program
   Regional Office (Appendix A)

   Reserve Copy - Chief Elected Official
   in the community where the withdrawal
   point(s) is located.

Send appropriate fee in the form of check or money order made payable to:

Commonwealth of Massachusetts, along with one (1) copy of the DEP Transmittal Form to:

Department of Environmental Protection
Lockbox - P.O. Box 4062
Boston, MA 02211

Application Check List

All WM03 permit applications must include the following items (as appropriate) in the initial permit application submittal:

___ DEP Transmittal Form for Permit Application and Payment - **W**_____

(Municipalities, municipal districts, municipal housing authorities and counties, are exempt from fees, but are required to submit the transmittal form.)

__ Form A - General Information - All applicants must complete, except for Cranberry Bog Withdrawal applicants who can complete Form E - Cranberry Growers Application.

___ Form B - For Groundwater Withdrawals

___ Form C - For Surface water withdrawals

___ Form D1 and D2 - Projections of historic and projected volumes of water use and demand

___ Form E1 and E2 - For Cranberry Bog Withdrawals Proposed Volume and Withdrawals Points (Surface and/or groundwater)

___ Form F - Evaluation of Potential Effects of Withdrawal

___ Form G - Alternatives to the Proposed Withdrawal

___ Form H - Groundwater Hydraulic Analyses for Non Potable Wells

___ Water Conservation Plan - Provide a description of a water conservation program and an implementation timetable. There is no standard format or form but an example is provided through the Water Resource Commission (WRC).- Conservation Plan. Visit the DEP website to review. www.mass.gov/dcr/watersupply/intbasin/docs/consplan.doc

For Public Water Suppliers, a completed Water Resources Commission Water Conservation Plan fulfills this requirement

SECTION C - EXPLANATION OF THE PERMIT APPLICATION REVIEW PROCESS AND APENDICES

General Information and Application Completeness

This section contains information on the WM03 permit application review process, public notice details and other information.

The WMA regulations at 310 CMR 36.21 and 310 CMR 36.23 (6) define requirements for WM03 permit completeness. Essential elements that demonstrate completeness are:

1. Public Notification
2. Fee Payment
3. MEPA notification
4. Demonstrated compliance with local water withdrawal limits (if any), and
5. Adequate response to written comment.

Because the public comment period has not expired at the time an applicant submits an application, and all public comment has not been collected, an application cannot be determined to be complete at the time of submittal.

Upon receipt of your application, DEP will review the application for completeness (Items 1 - 5, above). DEP will then:

- issue a notice that the WM03 application has been submitted and identify any of the required elements that are missing.

- or -

- issue an 'Order to Complete' (OTC) to the applicant. The OTC will identify any missing or additional information DEP requires, and list all public comments received that require a response from the applicant within a specified time frame.

At such time that the WM03 application is determined 'complete', DEP has ninety (90) days to issue a decision. If it is determined that additional time is necessary to make a decision, DEP will inform the applicant within the ninety (90) day time period in writing, that an extension of time is required. The maximum time period for an extension is nine (9) months past the date of the Notice of Extension.

Permit Application Review

The Water Management Act requires DEP to consider several factors in reviewing an application. These factors include the following:

- the need for the withdrawal.
- the impact on other withdrawers including WMAP registrants and permittees.
- the water availability in the river basin or watershed (the basin safe yield).
- the environmental impacts of the proposed withdrawal.

Public Notice and Public Comment Periods

Once the WM03 application is accepted by DEP, the applicant must publish a Public Notice requesting public comment concerning the withdrawal. The Public Notice must include a timeline for responses to be made. This section provides a written explanation for the time line for Public Notice. A graphical timeline for processing the WM03 WMAP permit is provided in Appendix C - WMA Program Permit Processing Time Line.

Role of the Local Water Resource Management Official

It is the responsibility of each community to appoint a local water resource management official (LWRMO). If the LWRMO has not been appointed, then the community's chief elected official is responsible for serving in this role. The chief responsibilities of the LWRMO are to review and implement recommendations provided through the community's Local Water Resources Management Plan that may have been prepared under the Water Resources Commission guidelines. The LWRMO also has a role in the Water Management Act Program permit process.The LWRMO:

a) Makes a copy(ies) of WM03 permit applications available for public review for up to thirty (30) days.
b) Forward any comments received to DEP at the end of the thirty (30) day review period.
c) Forward any responses to DEP at the end of the thirty (30) day review period.
d) Files, if appropriate, a statement on municipal letterhead certifying that the permit application is consistent with the Local Water Resources Management Plan as approved by the Water Resources Commission and that there was no opposition to the application was received within the thirty (30) day comment period; - or -
e) Comment, if appropriate, on any inconsistencies between the proposed withdrawal and the community's Local Water Resources Management Plan; - or -
f) Comment on the impact of the withdrawal, if a Local Water Resources Management Plan has not been prepared.

Public Notice Process

1. <u>PUBLIC NOTICE</u>

A Public Notice of the WM03 application must be filed in the legal notice section of a newspaper within fourteen (14) days of the application filing date. The Public Notice shall be published in a newspaper that:

- is of general circulation.
- covers the municipality and watershed where the withdrawal point is located.
- provides legal notices.

2. <u>SAMPLE PUBLIC NOTICE FOR PERMIT APPLICANTS with UNREGISTERED SOURCES OF SUPPLY</u>

The following information can be utilized as a Public Notice for permit application with unregistered sources of supply.

DEP - Water Management Act Program
Water Withdrawal Permit Application

Paragraph 1 - "The (Applicant name) has applied to the Commonwealth of Massachusetts - Department of Environmental Protection (DEP) - Water Management Act Program for a permit to withdraw _____ million gallons per day of water (an annual average) from the _____ (ground or surface water) of the _____ (river basin/watershed (s)), in _____ (municipality), over _____ years.

The location(s) of the withdrawal point(s) is/are:
_____ Town/City
_____ Street, Lot, or other descriptive location
_____ Site Name

Paragraph 2 - A copy of this application is available for review on _____ (hours and days) at the office of the _____(chief elected official) _____ or the appointed Local Water Resources Management Official at _____ (room and location).

Paragraph 3 - Written comments on the granting of a DEP permit for this withdrawal are required to be filed within thirty (30) days of publication of this Public Notice. Written comments must be submitted to the Chief Elected Official or the Local Water Resources Management Official at:

Department of Environmental Protection
Water Management Program
Regional Office Address (See Appendix A)

Chief Elected Official in the community where the withdrawal point(s) is located (address).

3. SAMPLE PUBLIC NOTICE FOR PERMIT APPLICANTS WITH REGISTERED SOURCES OF SUPPLY

Permit applicants who are applying for a permit to increase a registered withdrawal volume should substitute the following first paragraph in the Public Notice.

DEP - Water Management Act Program - Water Withdrawal Permit Application

Paragraph 1 - _____ (Name of applicant) has applied to the Commonwealth of Massachusetts - Department of Environmental Protection - Water Management Act Program for a permit to increase an existing registered withdrawal volume of _____ mgd to ____ mgd of water (annual average) from the _____ (ground or surface water_ of the _____ watershed/river basin(s) in _____(municipality) for a period of _____ years. The location(s) of the withdrawal point(s) is/are:
_____ Town/City
_____ Street, Lot Number or other descriptive location
_____ Site Name

(Add Paragraphs 2 and 3 from above here)

4. NOTIFICATION OF ABUTTERS

The applicant shall send a copy of the Public Notice by registered mail, return receipt requested, to the abutters of the property where the withdrawal is located within five (5) days of publication of the Public Notice. Notification by registered mail to abutters must specify the date the Public Notice was published in the newspaper.

www.mass.gov/dep/files/permits/fees.htm.

The abutters to the property on which the proposed withdrawal point(s) are located include:

- primary abutters, all those who own property which abuts the property on which the withdrawal point(s) is (are) located; and

- secondary abutters, all those who own property which abuts the primary abutters.

It should be noted in determining abutters of rights-of-way that:

- Railroads, all public roadways, canals, transmission lines, rights of ways, etc. are considered to be primary or secondary abutters so a copy of the Notice must be sent.

- Railroads and others are not considered to be primary abutters for the purpose of identifying secondary abutters, whose property abuts the railroad right-of-way.

Applicants should therefore "skip over" the railroad and others right-of-way when identifying secondary abutters.

For example, the parcel containing the withdrawal point abuts a railroad, which abuts the Jones property, which abuts the Smith property. The applicant should send Notices to the railroad, to the Jones as primary abutters and to the Smiths as secondary abutters.

The Assessor's Office in the City or Town Hall can provide plans and records to identify abutters.

5. NOTIFICATION TO DEP OF PUBLIC NOTICE

Prepare a notarized affidavit addressed to the DEP Regional Office WMAP staff that the Public Notice was performed. Send this document within ten (10) days after notification of the abutters and include with the submittal the following:

- a copy of the actual Public Notice as published in the newspaper, with the name of the newspaper and the date published.

- typed lists of the names and addresses of the abutters who were notified.

- The original or copies of all signed mailed registration green card(s).

Send the affadavit and documents to:

Department of Environment Protection
Water Management Act Program
Regional Office - (Appendix A)

Once these documents are received DEP will:

- Send Written Notice of the permit application to existing WMAP registrants and permittees, non-consumptive users, regional planning agency, and the chief elected official within watershed or hydrological distinct area where the proposed withdrawal(s) is located.

- Publish a summary of the Written Notice in the Executive Office of Environmental Affairs - MEPA Environmental Monitor.

- Receive public comments for thirty to forty five (30 - 45) days.

- Hold a public hearing, if after reviewing public comments received about the permit application it is the public interest to do so.

6. PUBLIC COMMENTS

DEP will respond to public comments on the permit application in several forms:

- Comments that the Chief Elected Official or the LWRMO receive or provide to DEP.

- Comments received directly from the regional planning agency, other WMAP registrants or permittees, abutters, and other interested parties during DEP's thirty to forty five (30 - 45) day comment period.

- Comments raised during the MEPA environmental impact process, if this applies to the permit application.

- Comments received at a public hearing, if one is held.

At the end of the DEP thirty to forty five (30 - 45**)** day comment period, the permit applicant will be asked to respond to all reasonable comments in writing.

7. MEPA REQUIREMENTS

Permit applicants may be required to file with the EOEA - MEPA office through submittal of an Environmental Notification Form (ENF) as outlined in Regulations 301 CMR 11.00. Permit applicants must meet MEPA requirements. Contact the EOEA - MEPA to determine project applicability.

EOEA - MEPA requirements for the Water Management Act are considered to be met once DEP receives one of the following:

- a copy of a statement from MEPA stating that regulatory thresholds do not apply to the project.

- a copy of a statement from MEPA in response to the filing of an ENF that no further action is required.

- or -

- if an Environmental Impact Report is required, a certificate from MEPA stating that the report complete and has been accepted.

If an ENF is provided to the EOEA - MEPA office, please provide a copy to the DEP WMAP Regional staff.

Public notice required under the MEPA ENF process may be combined with DEP permitting public notice requirements under certain circumstances.

8. FOR MORE INFORMATION

For information and assistance on the application process, contact:

Water Management Act Program
DEP Boston or Regional Office staff (see Appendix A)

SECTION D - EXPLANATION OF WM03 PERMIT APPLICATION FORMS AND APPENDICES

General Information

Prior to applying for a WM03 permit, the applicant or designee should consult with Water Management Act Program staff to ensure appropriateness to the Act, regulations, policy(s) and MEPA requirements.

Form A - General Information

This form outlines general information on the requested permit such as the: contact person or consultant, requested volume and rate of the withdrawal, an outline of the locations and number of withdrawal points, basic information on previous WMAP requests, the watershed location and the signed applicant certification.

Form B - Groundwater Sources of Supply

Form B must be completed if a groundwater withdrawal point(s) is being requested. The Form requests details on the type of well, capacity and pertinent well construction information.

Form C - Surface Water Sources of Supply

Form C is required to be completed if a surface water withdrawal is being requested. Requested information includes providing surface area and volume of the source, along with intake type and pumping information.

Form D – Future Water Needs

The information required on this form reflects the volume of water needed to meet the water demands on the system. Form D1 requires that historical information from previous water usage be provided. Form D2 is a projection of withdrawal volume. Anticipated reductions in the amount of water needed due to conservation programs, industrial process modifications, new agricultural crops or irrigation techniques should be factored in before these form(s) are completed.

The withdrawal projections for individual withdrawal points given on these forms should reflect the average amount per year to be withdrawn from that point. It should be noted that estimates of withdrawal volumes should be conservative to assure that the applicant is not requesting a volume that is too low and needs to be adjusted after Public Notice is provided.

DEP - Policy for Permits, and Amendments and 5 Year Reviews provided in Appendix D should be consulted in developing future water need projections.

Form D Option - Water Needs Forecasts for Public Water Suppliers

Public water supply applicants should employ long-term demand projections, referred to as reasonable needs forecasts that have been prepared by the Massachusetts

Demand projections are provided by the Department of Conservation and Recreation (DCR) as part of the river basin planning process. To obtain this information, contact DCR - Division of Water Supply Planning at (617) 626-1250.

Public water suppliers information should provide sufficient detail reflect criteria outlined in the DEP - Interim Allocation Policy (provided on the DEP website) and provide accurate updated data.

Options for Other Applicants

For other applicants, projected withdrawals will equal water demand requirements. To fulfill this requirement,provide a statement of the justifications and assumptions used to develop the withdrawal and demand projections. Demands can be based on water use per acre; projected manufacturing production; and modifications that will occur during the 20-year - planning period, etc.

Each watershed has a schedule of permit planning cycles that can be found in Appendix E - Map of Stressed Watersheds. Please provide the twenty (20) year demand information separately. This demand information may extend beyond the final year of the planning cycle for the withdrawal point(s) watershed.

Form E - Cranberry Bog Withdrawals Application

Forms E, E1 and E2 are required to be completed by cranberry bog grower applicants. Cranberry bog applicants are also required to complete Forms F, G and H. Cranberry bog withdrawal volumes are based on acreage in production rather than metered water withdrawals.

The form requires providing general information, location of the existing and/or proposed bogs withdrawal points and site information. There is aso a requirement to provide specific site information that can be submitted in the form of a report.

FORM F - Evaluation of Potential Effects of Withdrawal(s)

The evaluation of water withdrawal is in addition to the requirement to file an Environmental Notification Form. The evaluation addresses the specific results of withdrawal of a certain quantity of water, rather than the general environmental impacts of the entire project.

The WMA and program regulations (310 CMR 36.00) list specific impacts of the proposed withdrawal that DEP must consider in reviewing the permit application.

The WMA specifically addresses the effect of the withdrawal on a variety of water-based natural resources, which are listed on Form F - Potential Effects of Proposed Withdrawal(s).

A determination of the impact of a groundwater withdrawal must be based on the drawdown analysis technique provided herein (Form H - Groundwater Hydraulic Analysis) or as a DEP approved Zone II delineation. Therefore, it is recommended that applicants for groundwater withdrawals complete Form H - Groundwater Hydraulic Analysis prior to completing Form F - Potential Effects of Proposed Withdrawals.

Form F should be completed for each withdrawal point in the permit application, as well as for the cumulative effect of the entire withdrawal(s). If all impacts are the same, one filing will suffice for all similar withdrawal points.

Information may be provided regarding the impact of the proposed withdrawal(s) on the following parameters:

- Water quality and any effects on groundwater recharge.
- wastewater treatment and waste assimilation.
- effects of the withdrawal(s) on navigation, hydropower, water based recreation, fish, wildlife, and agriculture.
- effects on the floodplain in the area.
- other withdrawal points and the water available.
- other previously allowable withdrawals, their uses, land values and investments.

FORM G - Alternatives to the Proposed Withdrawal(s)

Form G is for the purpose of outlining alternatives to the proposed withdrawal(s) that address the following criteria:

- A cost analysis of the withdrawal versus alternatives.
- A feasibility study that evaluates environmental alternatives such as:

1. Leak detection and repairs to the water delivery system(s).
2. Water conservation and demand management evaluations.

The alternatives provided with Form G are intended to provide information that compares the proposed withdrawal to alternative methods that could meet future demand. For example, public water suppliers may eliminate the need for a new well by instituting leak detection and conservation programs that will save water. Industrial users may be able to decrease existing demands through recycling and process modification. Agricultural users may decrease demand by modifying existing irrigation systems. Alternative withdrawal points may minimize localized environmental impacts.

To complete this form, summary information is sufficient. The inclusion of conservation, demand management, and leak detection as alternatives does not relieve the applicant of the responsibility to provide a water conservation program for the proposed withdrawal

FORM H - Groundwater Hydraulic Analyses (GHA) for Non Potable Wells

For public water suppliers, DEP has separate guidelines for pump testing (Source Approval Process) that are outlined in the DEP Guidelines and Policies for Public Water Suppliers. Public water suppliers do not have to complete Form H. The GHA for Non Potable Wells assists in:

1. Identifying any areas of environmental concern, such as other water users, wetlands, streams, ponds, natural habitats and hazardous waste sites within a specified distance of the withdrawal(s).

2. Requires the performance of a pump test or the use of existing data to determine aquifer characteristics such as tranmissitivity, storativity and stratigraphic sequence.

3. Uses surface water and wetland impact analyses method(s) to estimate the drawdown caused by the proposed withdrawal.

4. Uses an acceptable drawdown analysis method to estimate the drawdown caused by the proposed withdrawal, if other groundwater users are nearby.

Please use Form H - for general information and utilize the Appendix F - Groundwater Hydraulic Analyses for Non Potable Wells as a checklist to complete the report and submit with the permit application or as advised by DEP - WMAP staff.

Additional Information

Additional information that can be utilized to complete the permit application includes:

- **Water Conservation Standards - Water Resources Commission**

The Water Resources Commission (WRC) developed water conservation standards for use by public water suppliers and others. Updated information is provided on the DEP and WRC websites.

- Water Conservation Plan for Public Water Suppliers (and others)

This form, provided on the DEP website and through the Water Resources Commission outlines issues to be addressed that will assist in development of a Water Conservation and Demand Management Program. Water Management Act Program permit applicants may find it useful in complying with program requirements.

Permit regulations require each applicant to submit a water conservation program and a timetable for implementation. Water conservation includes a full range of water supply conservation, demand management and water reuse activities and devices that are applicable to the particular withdrawal and its users.

Upon approval, in most cases, the water conservation program will be attached as WMAP permit conditions. The following outlines various methodologies that can be utilized in developing water conservation plans.

a. For Public Water Suppliers:

DEP will require a completed Water Conservation Plan be submitted as part of any permit application, permit modification or 5 – Year Review as a basis for developing a water conservation program.

The Water Conservation Plan asks a public water supplier to identify actions that can be taken in several areas:

- water meter installation and maintenance

- leak detection
- full-cost water pricing
- public information, education and employee awareness
- drought conditions and emergency procedures
- efficiency of water fixtures
- water resource protection

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

b. Interbasin Transfer Act Approval

The Inter basin Transfer Act (IBT) regulates water flow from one watershed (basin) to another. The applicant should determine if these conditions exist prior to an application submittal. If the condition exists, then a separate application for approval to transfer water from one watershed to another must be submitted and approved by the Commonwealth's - Water Resource Commission, prior to the DEP WMAP approval.

Additional water conservation and performance standards may be applicable.

c. For Industry:

Industries are expected to submit a five-year program plan identifying standard industry water conservation and reuse practices that are applicable to their water uses, along with an implementation plan for water conservation and/or equipment capital improvement program that outlines the potential water volume and dollar savings that are anticipated. DEP recommends a full water audit of the facility to assist in development of this conservation plan.

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

- Identification of end uses of water that is withdrawn.
- Preparation of a water audit.
- An employee water use awareness program.
- Process and/or water cooling water reuse conservation and demand management efforts
- Reduction in sanitary water uses.
- Maintenance procedures that may include:
  leak detection, steam blow-down procedures, use of steam condensate, multiple rinses, valves and timers, automatic sprinklers, and review of water use to minimize peak water use.
- Installation of water efficient machinery or retrofitting of existing machinery.

c. Agricultural Irrigation:

For agricultural water users, participation in the US Natural Resources Conservation Service program for soil and water conservation plans will fulfill this requirement. Applicants 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 the industry. This plan must include a timetable of implementation, cost, and anticipated water savings.

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

- New or retrofitted irrigation and sprinkler systems.
- Maintenance practices such as the rescheduling of irrigation timeperiods, leak detection of the piping system, adjusting the area of irrigation coverage, and pump connections.
- Retrofitting existing irrigation systems for water use efficiency: e.g. timers on sprinkler heads.
- Tilling and planting practices.
- Tail water recovery, ditch and canal maintenance and repair.
- Increased storage capacity.
- Employee awareness of water usage.

d. Cranberry Growers:

Cranberry growers are expected to address the applicability of at least the following water reuse and conservation actions to their operation. The application provided as Form E - Cranberry Growers Application outlines a water conservation program requirement that addresses the following issues:

- Flume and dike repair and maintenance.
- Irrigation practices and tailwater recovery.
- Reuse of water and storage capacity requirements.
- Regrading of selected bogs and practices of sequential flooding of bogs.

e. Golf Courses:

Golf course owners will be expected to submit a five-year plan that identifies applicable options for reducing and minimizing irrigation water, including a timetable of implementation, and the anticipated water volumes that will be saved. Irrigation design practices should include the ability to isolate watering for tee boxes, greens and fairways during periods of watering conditions.

Superintendents (turf managers) are required to submit the information as part of the conservation program required for permit applicants.

- An employee awareness program for water conservation.
- Irrigation system maintenance program. Description should include:
  New or retrofitted irrigation and sprinkler systems which reduce water use:
  e.g. installing timers on sprinkler heads.
  Maintenance practices such as scheduling the weekly reading of water meters volumes, irrigation leak detection, and adjusting irrigation heads to minimize coverage and regular inspection of pump connections.
- Efforts to retrofit/replace plumbing in the club house and other buildings with water saving fixtures (indoor use).
- Greens maintenance efforts that include:

- Efforts to regularly aerate and spike soil to reduce compaction and improve percolation of water into soil.
- Feasibility of planting turf that requires less water.
- Feasibility of installing tensiometers and/or gypsum blocks in drier areas to determine soil moisture content, thus indicating any need for watering.
- Feasibility of using reclaimed wastewater for irrigation.

f. Other:

Individual applicants should propose water conservation methods that represent standard industry practices for their types of water use.

WMAP Policy for Permits, Reviews and Amendments

A DEP policy entitled: Water Management Policy for Permit and Permit Amendments Applications and 5 Year Reviews outlines DEP positions on water conservation. This policy imposes water conservation and reporting standards; uses site screening criteria to evaluate new sources or increases from existing sources of supply would have significant flow impacts and; requires that proposals include evaluations to offset proposed withdrawal by reducing out of basin water flows or increasing water returned to the basin and denies any new or increased withdrawal that cannot be mitigated and will cause a significant impact.

Seasonal Cap Spreadsheet

Appendix D contains an Excel spreadsheet that allow calculations to be performed for determining seasonal water use volumes. The interactive form can be downloaded from DEP website.

SECTION E - NONCONSUMPTIVE USES

General Information

Water Management Act regulations state that 'withdrawals of water that in the opinion of DEP constitute a non-consumptive use are exempt from...the Act'. Non-consumptive 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."

DEP policy allows individuals to apply for non-consumptive status if water quality and quantity are not affected by the proposed activity. NPDES discharge permits and accompanying conditions are not valid as proof of 'no substantial effect'. A form for submittal of non-consumptive use information to DEP is provided in Appendix H.

Types of Non Consumptive and Consumptive Use

The following outlines the DEP position in regards to the types of water use that is considered non-consumptive use. Applicants for non-consumptive use status shall file a non-consumptive use form with signed certification.

a. Hydroelectric Generating Facilities

There are three types of hydropower facilities that are considered approvable for non-consumptive use status:

o run of the river facilities
o pressure relief facilities
o canal fed facilities

A "run of the river facility" generally consists of a dam and turbine generating set. River water is withdrawn, passed through the facility with minimal water losses, temperature changes and returned downstream to the river system.

A "pressure relief facility " is waters that are placed in a water transmission line to bleed off excess energy from a hydraulic system. Water is passed through the facility and returned downstream to the river or water resource system with minimal water losses and temperature changes.

A "canal fed" hydro mechanical facility is provided waters a canal that may be provided water by a river, bay or lake. The facility discharges into another canal or body of water down gradient from the facility with minimal water losses and temperature changes.

b. 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 up gradient into a reservoir. The water is released back to the same water source, but not necessarily at the same location. Significant water loss can take place through system leakage and reservoir evaporation. There is the

possibilty that the volume from the water source could be reduced.

Reservoir site selection is based in part on an extensive leak analysis. Information on leakage rates should be available from the non-consumptive applicant, along with information on evaporation rates from the reservoir. With this information, DEP can determine if water loss is sufficient to require permitting or if non-consumptive status is appropriate. Any water loss that constitutes an interbasin transfer is considered consumptive.

c. 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.

d. 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 into ground.

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

In 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, DEP will consider individual non consumptive applications that demonstrate no significant water quality impacts.

In many other industrial non-evaporative cooling processes, chemicals are discharged as well. DEP 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, DEP will make an individual determination on whether the withdrawal is consumptive based on water quality information provided by the applicant.

e. Fish Hatcheries

The source of water for fish hatcheries is typically from groundwater and surface water points or a combination of both. In a fish hatchery, water loss can occur from surface evaporation and leaky tanks and/or stock ponds. There are potential water quality impacts

that can occur from discharges back into water sources. Therefore, water use by fish hatcheries is considered consumptive.

f. Reservoir Operation and River Management

Reservoirs can be operated to maintain seasonal flow rates downstream of the control structure(s). This form of river management is considered non-consumptive, as it does not affect quality.

g. Sand and Gravel Operations

Some sand and gravel processors use high volumes of water to wash and sort mined sand and gravels that results in discharge waters that are often laden with sediment and debris thus altering the water quality. For this reason, these withdrawals are considered to be consumptive.

Sand and gravel operations that demonstrate satisfactory to DEP that their operations are designed to operate effectively as ‘closed loop’ systems and are below the threshold volume may be considered to be non-consumptive.

SECTION F - APPLICATION FORMS

General Information

This section contains the forms for a permit application, modification or amendment. The DEP website contains BRM WM01 - Water Management Act Transfer Form and BRP WM02 - Water Management Act Amendment Form.