

Connecticut

Drought Preparedness and Response Plan

August 4, 2003

**Prepared by Interagency Drought Work Group
as accepted by the
Connecticut Water Planning Council**

The Interagency Drought Work Group consists of staff from:

Department of Environmental Protection,

Department of Public Health,

Department of Public Utility Control,

Department of Agriculture,

Office of Emergency Management, and

Office of Policy and Management

with assistance from the

U.S. Geological Survey

Connecticut Drought Preparedness and Response Plan

I. Introduction

The purpose of this drought plan is to preserve essential water uses during a drought (water used to satisfy federal, state, and municipal public health and safety requirements, water used for firefighting, and water needed to maintain aquatic life forms), to recommend a framework for an integrated approach to the assessment of drought conditions, and to set forth drought action levels and the appropriate responses that should occur as drought conditions worsen. Droughts have occurred periodically in Connecticut 1964-1968 1981, 1987, and 2002. This plan grew out of activities undertaken in response to the drought that occurred during the Spring of 2002, and reflects the desire of the participating state agencies to develop more formalized operating procedures in order to improve the effectiveness and predictability of future state drought response activities.

This plan provides statewide guidance to assess and to minimize the impacts of a drought on Connecticut. To accomplish these objectives the Drought Preparedness and Response Plan:

1. Defines a process to guide state agencies to address drought-related activities, including monitoring, impact assessment, and the preparedness for successively more severe drought stages,
2. Identifies activities that may be implemented to coordinate drought assessment, response and impact mitigation,
3. Identifies the state, local, federal and private sector entities that are primarily responsible for managing drought-related activities, and
4. Promotes effective mobilization of public and private resources to manage drought mitigation efforts.

Connecticut has been involved in water conservation planning and drought mitigation in the past. There have been a number of accomplishments that leave the state better prepared to conserve water and mitigate drought impacts:

- The 81 water utilities that serve over 1,000 people or 250 customers have prepared water supply plans. As a part of these plans, each of these water utilities is required to have a water conservation component and an emergency contingency plan component.
- The individual water utility plans outline actions to be taken in response to local public water supply conditions.
- In 1989 a law was passed that required the sale of only low flow devices, such as shower heads and low flow toilets.

- In the same year a law was passed that required water utilities to make available, free of charge, many of these low flow devices to encourage their customers to retrofit their residences with water conserving devices.
- The 81 water utilities are now required by law to make an annual distribution of water conservation educational information to their customers.
- In the late 1980's a program was established to retrofit state agency buildings with water saving fixtures and devices.

An effective drought response program hinges on communication among state agencies and public water providers and the timely dissemination of clear and succinct information to the public. An effort has already been made to develop a comprehensive information dissemination system consisting of a dedicated web site with links to other state, federal, and private drought information. There also needs to be a mechanism of direct technical assistance to significant water user groups.

A drought is not a distinct event that has a clearly defined beginning and end; nor does it affect all water users equally. Taking a proactive approach to drought management requires continuous monitoring of factors indicating the onset and extent of drought conditions. To supply real-time weather, streamflow, groundwater, reservoir and soil information, a network of data-gathering sites, operated by various federal and state agencies is necessary and monitoring activities need to be increased as conditions warrant.

Responses may vary from drought to drought depending upon the conditions and resources most affected. For instance, one type of drought is the hydrological drought that results in deficiencies in surface and subsurface water supplies. It is characterized by low streamflow, and by low reservoir and groundwater levels. It usually results from a general lack of precipitation of several months and may require several months of above average precipitation to recover. Another type of drought is the agricultural drought. It occurs when there is inadequate precipitation and soil moisture to sustain crops and vegetation and results in serious damage and economic loss to agriculture. It is associated with the growing season and may occur and recover with greater suddenness than a hydrological drought. These two types of drought are not mutually exclusive and will usually occur together with varying degrees of severity.

As a result of the variability in the types of drought, the variability in the relative severity of the drought experienced among the different regions or water utilities, and the changing seasons when the drought may occur, this plan must be flexible and adjust to the local circumstances. Conditions must be evaluated as they occur and the responses that are most appropriate selected to address those specific conditions. The various drought stages and specific actions within each stage that are recommended in this plan may need to be adapted, as conditions warrant, to the unique circumstances that are occurring.

Severe droughts of long duration will have dire consequences on many aspects of society.

This plan identifies the role of the lead state agencies, however, the resources of these agencies may be overwhelmed during such a drought. While continuing water conservation practices and proactive drought planning and response mitigation will help prepare for such eventualities, an emergency reallocation of state personnel may be required to execute activities required to manage a severe drought.

II. Responsibilities

Managing drought is a responsibility shared by numerous organizations and agencies at all levels.

FEDERAL

Office of the President

Declare drought emergencies when necessary, allowing areas of the State to receive financial and other assistance from the Federal Emergency Management Agency.

The National Oceanic and Atmospheric Administration (NOAA)

Track national and regional weather conditions.
Provide drought data to the State of Connecticut via the National Weather Service (NWS).

U.S. Geological Service (USGS)

Track streamflow and ground water levels.
Provide information on streamflows and groundwater levels to the Interagency Drought Working Group.

U.S. Department of Agriculture (USDA)

Provide assistance to farmers suffering from drought.

CONNECTICUT

Governor

Provide overall direction of state government drought response.
Close forestlands as necessary in extreme drought conditions pursuant to Sec. 23-50 Connecticut General Statutes (CGS).

Office of Policy and Management (OPM)

Coordinate state agency drought management activities.
Member of Interagency Drought Working Group

Department of Environmental Protection (DEP)

Member of Interagency Drought Working Group

Maintain drought information on website.

Consult with manufacturing and commercial establishments that are large water users in order to provide advice on methods that can be instituted to decrease their consumption.

Respond to questions concerning water quality standards and classifications.

Provide current and historic information on precipitation, evapotranspiration, etc.

As a result of a water supply emergency declaration by the Governor, the Commissioner of DEP shall be empowered under Sec. 22a-378 to take a number of steps:

- Regulate diversions, discharges, minimum streamflow standards, dams, and enforce minimum streamflow release requirements, discharges, and other activities when public health and safety is threatened.
- Suspend a diversion permit or impose conditions on a permit.
- Declare a forest fire danger/drought emergency and regulate open burning in or adjacent to woodlands and brushlands.

Department of Public Health (DPH)

Has jurisdiction over all matters concerning the purity and adequacy of any source of water and protects public health through regulatory oversight of public water systems and the provision of technical assistance pursuant to CGS Section 25-32(a).

Assess and respond to any impacts of water shortages on public health and on water utilities.

Regulate permitting requirements for sale of excess water by any public water system to another public water system.

Coordinate drought response actions with local health officials and utilities. Mission is to influence the behavior of public water systems so that they take all necessary precautions to protect and preserve sources and systems of supply.

Member of Interagency Drought Working Group.

Develop public education and outreach materials for the public.

Assess any detrimental condition affecting supply adequacy, including drought pursuant to Public Health Code (PHC) Section 19-13-B46.

Require each community water supply system to maintain a supply in excess of system demands, and immediately implement conservation measures, as

necessary pursuant to PHC Section 19-13-B102 (O) and (P). RCSA Section 25-32d-1-(c)(5) also requires systems supplying water to 1,000 or more people to implement their required conservation and emergency contingency plans.

Collect and analyze information on the status of public water supplies as the central resource to for the compilation of data, coordination of activities, and information dissemination regarding instances of drought related water system failure.

Regulate new sources of water supply.

May identify and order the temporary emergency use of water sources

Work with water purveyors to develop emergency plans.

Provide technical assistance to utilities and local health departments and to private well users through local health departments. Also, relays drought information to the local health officers of the impacted communities.

Lead agency with regard to monitoring public water supplies for drought impact.

Oversight of community and nontransient noncommunity water systems.

Require state agencies and commercial enterprise to equip an automatic lawn sprinkler system with a rain sensor device to override the sprinkler system when adequate rainfall has occurred.

Department of Public Utility Control (DPUC)

Determine the terms of the sale of any water sold pursuant a declaration of a public drinking water supply emergency by Commissioner of Public Health pursuant to Section 25-32b when the water utilities that are party to the sale cannot determine such terms or if one of such water utilities is regulated by the Public Utilities Control Authority.

Consider any special emergency regulations, which may be necessary and proper to ameliorate the present situation for those communities, which are served by private water utilities.

Member of Interagency Drought Working Group

CT Office of Emergency Management (OEM)

The Office of Emergency Management is charged with developing and maintaining civil preparedness within Connecticut. Civil preparedness is any activity that minimizes the affect of a natural or man-made disaster or enemy attack on the civilian population. The OEM has several responsibilities:

- Maintain the local branch of the National Warning System (NAWAS);

- Develop and maintain various types of emergency operations plans for state government;
- Provide technical planning assistance to communities as requested or as needed;
- Provide training programs for state and local municipalities in civil preparedness;
- Conduct emergency operations drills and exercises;
- Work with DEP to administer the Hazard Mitigation Programs of the state.
- Coordinate with Governor's Info line (211) to respond to public inquiries; and
- Work with the Department of Public Health regarding the provision of emergency water and power equipment and water buffaloes for emergency use.

Member of the Interagency Drought Working Group.

CT Department of Agriculture (DOA)

Provide assistance to farmers suffering from drought.

Member of the Interagency Drought Working Group

Provide information on the impacts of a drought on the agricultural community.

CT National Guard

Assist with emergency distribution of public water.

III. Pre-Drought Preparedness

Droughts can vary widely in duration, severity, and local impact. They can have widespread social and economic significance that require the response of numerous parties. As a result, drought response cannot be just about last minute preparations but must be factored into the overall management of the water resources of the state. This drought plan assumes that the following long-term planning and readiness activities will be undertaken.

The ability to accurately assess the severity of current conditions and to predict the future status of a drought depends upon extensive, long-term monitoring and data collection. Taking a proactive approach to drought management requires continuous monitoring of factors indicating the onset and extent of drought conditions. There is a need to supply real-time weather, streamflow, groundwater, reservoir, and soil moisture information to water planning professionals who can compare it with a reliable historical record. A network of data-gathering sites, operated by various state, federal and local agencies and organizations must be maintained and utilized in order to obtain the necessary information. Therefore, there needs to be an ongoing monitoring effort to ensure that the most accurate and up-to-date information is available for the decision-making process.

The water utility water supply plans prepared by the major water utilities include a water conservation component and an emergency contingency planning component. Included are triggers for implementing stricter water conservation at various stages during a drought. In addition, Water Utility Management Committees in the preparation of their areawide water supply plans are now required to evaluate water conservation as one of their charges. This drought plan incorporates and supplements these efforts.

Water conservation should be established as a priority in all water management decisions because there would be insufficient lead-time during emergencies to undertake water saving improvements. In addition, water conservation is more important than ever due to increasing demands on water supplies and the high costs and difficulties in developing new supplies. Therefore, water conservation should become an ongoing process in the planning and the daily functioning of each water utility.

Municipal authority is necessary to enforce locally required drought response measures. Many municipalities do not have local ordinances in place in order to implement water conservation measures during droughts and other emergencies. What is needed is to request that each of the municipalities have in place the necessary local ordinance that is tailored to the needs and priorities of each individual community. An important component of such an ordinance would be the requirement for adequate coordination between the municipality and the water utility that serves the community, when the water utility is investor-owned.

Further, Appendix B list a number of studies and actions that must be more fully developed for this plan to be implemented more effectively.

IV. Drought Stages and Responses

The drought stages and activities that follow are intended to guide implementation of the state's response to the drought depending upon seasonality and meteorological events that occur. Each drought stage is determined by weighing all of the criteria used to determine the severity of a drought (Precipitation, Ground Water, Streamflow, Reservoir Levels, Palmer Drought Severity Index, Crop Moisture Index and the Fire Danger).

These seven drought criteria mentioned above are re-assessed each month, therefore, the drought stages are adjusted only once per month. This facilitates a smooth progression from Advisory to Watch to Warning on a monthly basis if the drought worsens. The spacing of re-assessments every 30 days also provides time for conservation measures to be effective.

The following drought stages are Normal, Advisory, Watch, Warning and Emergency. The term normal refers to conditions that do not negatively impact water supplies, vegetation, or water quality in the state. The baseline used for rainfall for example is the average monthly rainfall between 1955 – 1985.

The terms Advisory, Watch, Warning and Emergency are defined at each stage in this plan. The following section defines each stage and the actions that may be taken to respond to that stage.

A. DROUGHT ADVISORY STAGE

Drought Stage Criteria

A decision to issue a Drought Advisory is based on assessing the current and forecasted conditions of surface waters, ground water, reservoirs, soils, and vegetation relative to normal conditions. Each measure and index serves only as a relative guide.

Recommendations can be based on what the majority of the indicators show. The criteria for consideration are as follows:

Precipitation:	Two months cumulative below 65% of normal,
Ground Water:	Three consecutive months below normal,
Streamflow:	Two out of three months below normal,
Reservoirs:	Average levels less than 80% of normal.
Palmer Drought Severity Index:	-2.0 to -2.99
Crop Moisture Index:	-1.0 to -1.99 abnormally dry,
Fire Danger:	Moderate.

Actions

- Issue a Drought Advisory and a joint press release: - Commissioners of DPH, DEP and DPUC
 - a. Set a voluntary water use reduction goal of 10 percent for all residents and organizations (both private and public water supplies).
 - b. Release DPH fact sheet on conservation methods.
 - c. Urge residents to cooperate with local utilities as conditions may be worse in specific areas requiring greater efforts in accordance with adopted utility plans.
 - d. Urge residents and businesses to cut back on unnecessary water use, such as lawn watering, washing cars, etc.
- Initiate the Interagency Drought Workgroup to: - (OPM)
 - a. Systematically collect, analyze, and disseminate real-time drought-related information.
 - b. Reaffirm duties and responsibilities and assure information flow among state government agencies.
 - c. Disseminate an up-to-date inventory of state and federal programs related to drought emergencies.
 - d. Recommend appropriate drought stage based upon available data and evaluations.
 - e. Provide the timely and accurate assessment of drought impacts.
 - f. Provide accurate and timely information to the media and public.
- Initiate website activation consisting of both drought assessment information and water conservation and contingency management activities. Provide links to all appropriate state agencies managing the drought response. - DEP/OEM/DOIT/DPH/USGS
- Hold news conference to announce activation of a drought web site and information line, and outline a media plan to notify the public of ongoing conservation measures. - Commissioners of DPUC, DEP, and DPH
- Disseminate information on water conservation tips to homeowners, e.g., “Water Efficiency Measures for Residents,” and “Water Efficiency Measures for Landscaping”, such as through the Internet, public service announcements and other timely mailings by water utilities. - DPH/DEP/Water Industry
- Notify all water utilities to communicate with their consumers to practice voluntary conservation. - DPH
 - a. Review database of water suppliers and communicate vital information and assess needed technical and financial assistance in an emergency. - DPH
 - b. Maintain a map of water systems that have requested voluntary conservation and have placed mandatory water restrictions using triggers points contained in their individual water use plans. - DPH
 - c. Implement water conservation measures pursuant to appropriate utility specific triggers in approved Water Supply Plans. – Water Industry

- Offer technical assistance to water utilities experiencing problems to assist with system management and promotion of water conservation with specific measures tailored to each water utility. – DPH/Water Industry
 - a. Assist water utilities in strengthening conservation measures.
 - b. Undertake repairs to bring unaccounted for water to a level of 15% or lower.
 - c. Postpone discretionary, scheduled water consuming repair work and shutdowns.
 - d. Offer water use audit to all large water users and offer to send notices of conservation with specific water reduction steps to customers. Provide assistance to large customers in detecting and fixing water leaks, and in the installation of additional water conservation devices.
 - e. Continue to assess dam leakage at reservoirs; if necessary undertake repairs where the lowering of water levels is not required.
 - f. Postpone routine distribution system flushing.
 - g. Suspend all routine exercises that require fire hydrants to be opened and flushed.
 - h. Notify municipal public works departments and fire responders to suspend all exercises that require fire hydrants to be opened and flushed.
 - i. Evaluate riparian releases.
- Submit drought assessment reports as necessary to agency heads – Interagency Drought Workgroup
- Expedite drought-related diversion permit applications - DEP
- Broadcast public service announcements to television and radio stations as resources permit. – DPH
- Partner with home improvement industry and utilities – to urge the purchase of water saving devices and appliances. – DPUC
- Incorporate water saving assistance to major water users as a part of on-going industry inspection program. – DEP
- Direct state agencies to conserve water at state facilities. – Governor, Commissioners, or DPH.
- Consider sending a letter or develop a paycheck stuffer to urge state employees to conserve water at home. – DPH
- Recommend municipalities designate an official “Drought Coordinator”.

Monitoring

- Monitor daily, weekly, or monthly as appropriate, the primary indicators of drought severity and produce weekly a Drought Assessment Report for agency heads and for posting to the state drought web site:
 - a. Ground water levels and trends - USGS
 - b. Stream flows and trends – USGS
 - c. Reservoir levels and trends - DPH
 - d. Number of utilities at voluntary and mandatory response levels – DPH
 - e. Number of utilities with special problems – DPH
 - f. Palmer Drought Severity Index – DEP

- g. Crop Moisture Index – DEP
- h. Daily Forest Fire Danger Report – DEP
- i. Cumulative Rainfall Deficit. - DEP
- Continue to review and improve data collection pertaining to primary indicators as appropriate – All agencies
 - a. Select most appropriate stream gauging stations and groundwater observation wells for more frequent monitoring. - USGS/DEP.
 - b. Review water supply systems that have historically had adequacy problems, “target systems,” and provide technical assistance as needed. - DPH
 - c. Review National Weather Service (NWS) drought status and precipitation data. - DEP
 - d. Review reservoir storage reports of the systems that use surface water supplies, to assess the adequacy of the state’s surface water sources, to institute weekly reservoir level reporting for selected systems, and to establish additional monitoring of water supply tributaries. Send letter to “Water Utilities of Concern” and those utilities that have not submitted adequate data. - DPH.
 - e. Compile and prepare weekly assessment – Interagency Drought Workgroup
 - f. Continue review and analysis of aggregate water production usage records for progress toward meeting drought objectives.
- Continue monitoring of local water supply conditions, respond to customer complaints and problems related to drought conditions, and report any drought-related problems to DPH. – Water Utility Industry
- Review activities of neighboring states through websites, and in coordination with National Weather Service and USGS. - DEP
- Survey local health departments and well drillers concerning well drilling activity related to drought. - DPH

Coordination

- Hold regularly scheduled state interagency meetings to facilitate communication, to comprehensively respond and assess the situation, and to jointly develop next-step recommendations. - OPM, DEP, DPH, OEM, DPUC, and DOA with technical assistance from USGS.
- Designate agency spokesperson(s) to coordinate interaction with the public and expedite information referrals. – All appropriate agencies
- Hold bi-weekly meetings with water utility industry representatives to assess individual and collective conditions, identify problems with system management and water conservation performance, and to craft coordinated approaches by government and industry. - DPH in coordination with DEP, OPM, and DPUC
- Coordination with CT Section of American Water Works Association’s (AWWA) Water Conservation Committee to effectively communicate needed conservation actions, such as a water conservation brochure. -DPH

- Send letter to local health directors asking for their assistance to promote water conservation, monitor local situation, and report problems. – DPH
- Periodic meetings with local health directors
- Periodic meetings with various water use groups, for example:
 - Pool & spa industry – DPH
 - Car wash industry – DPH
 - Horticultural industry – DPH
- Initiate *Door-To-Door* initiative, for example – DPH
 - Medical community
 - Schools, day care centers and others
- Meet with weather forecasters to improve informed reporting and accurate state perspective on the drought. - DPH

Preparedness

- Survey and assess municipal drought preparedness - DPH:
 - Advise municipalities to review and enact appropriate ordinances to enable the enforcement of water conservation if needed in the future and to coordinate enforcement efforts with investor-owned water utilities, when pertinent.
 - Advise water utilities to work with their municipalities to implement the current water conservation goal and to review and develop local ordinances.
- Issue guidance document for private well users who may require assistance with well repairs or enhancement and make this available via Internet. – DPH/DEP
- Develop, post, and maintain an appropriate web site that is linked to state agency sites with relevant information to assist in informing the public, the water utilities, business, and industry. --Appropriate state agencies
- Evaluate adequacy of current agency legislative authorities. – Appropriate state agencies
- Establish up-to-date list of approved water haulers and link the list to state web site. – DPH/DEP
- Establish up-to-date list of approved bottled water purveyors and link the list to state web site. – DPH/DEP
- Establish up-to-date list of licensed well drillers and link the list to state web site. – DPH/DEP
- Disseminate generic press releases and notification letters to water systems, local health directors, well drillers, etc. – DPH
- Review plan for managing potential forest fire hazards and threats. – DEP
- Identify non-essential water uses relative to the Drought Watch Stage and time of year. (See Section IV for guidance) – Interagency Drought Workgroup

B. DROUGHT WATCH STAGE

Drought Stage Criteria

A decision to issue a Drought Watch is based on assessing the current and forecasted condition of surface waters, ground waters, reservoirs, soils, and vegetations relative to normal conditions and shall be guided by the following criteria:

Precipitation:	Three months cumulative below 65% of normal,
Ground Water:	Four consecutive months below normal,
Streamflow:	Four out of five months below normal,
Reservoirs:	Average levels less than 70% of normal.
Palmer Drought Severity Index:	-3.0 to -3.99
Crop Moisture Index:	-2.0 to -2.99 excessively dry,
Fire Danger:	High.

Actions

- Enter a Drought Watch Stage - Governor/Commissioners
 - Set a voluntary water use reduction goal of 15% for all residents and organizations,
 - Send letter to municipal officials urging municipal governments take steps to conserve water by 15%.
 - Request all public water suppliers to issue voluntary conservation appeals of 15% to all of their customers.
 - Send letter to state agencies requiring water conservation measures and to review and update any drought/emergency plan.
- Ensure municipal preparedness - DPH/Water Industry
 - Obtain feedback from large water systems concerning adequacy of municipal authorities in place for water emergencies.
 - Follow-up and provide technical assistance to towns regarding local ordinances (recommend model ordinances, authorities, and fines.)
- Monitor implementation of individual water supply plans and determine if local/regional water supply situation warrants a targeted emergency declaration - DPH
- Provide technical assistance to utilities on managing systems during dry conditions, including administering an expedited review of proposed system upgrades and alternative water supplies for drought-impacted community water systems and assist in the identification of emergency connections. - DPH
- Consider enabling local health directors to permit emergency private well construction with proper protection from cross connection within existing water utility service areas. - DPH
- Initiate contact with federal agencies (FEMA/EPA/USGS/USDA/Corps) in order to identify federal assistance capabilities – Interagency Drought Workgroup
- Schedule in-stream flow releases for best management of fish and wildlife resources and suspend spring freshet requirements where appropriate after

analysis has been completed of where conservation and emergency measures have been implemented but are not meeting goals - DEP

- Review and implement, as needed, the plan for managing potential forest fire hazards and threats. – DEP
- Target heavy water users and evaluate mechanisms for water use reduction. Use guidance provided in “Industrial/Commercial/Institutional Water Users – Planning Guidance for Water Conservation and Emergency Contingency Plans” and “Agricultural Water Users - Planning Guidance for Water Conservation and Emergency Contingency Plans”. - DPH/water industry

Monitoring

- Continue frequent monitoring of ground water observation wells and streamflows. – DEP/USGS
- Initiate weekly reservoir level reporting to DPH for specific systems with problems. – DPH
- Request local health directors to track and to report, for both shallow and deep wells, problems related to the drought. - DPH
- Monitor utilities of concern. - DPH
- Review adequacy of water monitoring and consumption records. - Water Utilities

Coordination

- Coordinate with the Army Corps of Engineer on potential use of flood control reservoirs for water supply purposes. – DEP
- Request water utilities, that have the capability, to provide water use data to customers (e.g. annual bar chart of monthly usage similar to electric industry) - DPUC

Preparedness

- Assist agriculture industry by determining possible issues, prospective situations, and remedial steps that can be taken, as necessary. - DOA.
- Review and if necessary implement plans for dealing with potential forest fire hazards and threats. – DEP
- Request municipalities to designate a municipal drought coordinator and specify the required role and responsibilities of a municipal drought coordinator during an Emergency. - OEM
- Consider using existing state authority to implement a ban of non-essential water uses if drought conditions worsen. - Interagency Drought Working Group
- Determine where temporary interconnections between water utilities are needed and, where feasible, expedite or waive permits. - DPH/DEP/Water Utilities
- Identify non-essential water uses during the Drought Warning Stage relative to time of year (See Section IV for guidance.) – Interagency Drought Workgroup

- Advise holders of registered and permitted water diversions of the conditions that are prerequisite to a suspension of minimum stream flow standards pursuant to CGS 22a-6 and RCSA 26-141a-4(b). - DEP
- Consider preparations to reactivate “emergency” and “inactive” sources of water supply for potential use. – DPH/Water Industry

C. DROUGHT WARNING STAGE

Drought Stage Criteria

A decision to issue a Drought Warning is based on assessing the current and forecasted condition of surface waters, ground waters, reservoirs, soils, and vegetations relative to normal conditions and shall be guided by the following criteria:

Precipitation:	More than four months cumulative below 65% of normal,
Ground Water:	Four consecutive months below normal,
Streamflow:	Six out of seven months below normal,
Reservoirs:	Average levels less than 60% of normal.
Palmer Drought Severity Index:	Minus four or less.
Crop Moisture Index:	Minus three or less, severely dry
Fire Danger:	Very high.

Actions

- Enter a Drought Warning Stage - Governor
 - Set a water use reduction goal of 20% for all residents, organizations, and state agencies.
 - Establish Drought Task Force of state and local government personnel and private interests to:
 - A. Coordinate the actions of state agencies and other organizations to respond to immediate and temporary need for providing emergency drinking water to communities that are soon expected to exhaust their supply of or access to potable drinking water.
 - B. Assess and report potential impacts of water shortage on state’s economy, communities, agricultural and natural resources.
- Determine on a service area or broader geographic basis the need to declare a public water supply emergency pursuant to Section 25-32b and direct appropriate water utility actions. - DPH
- Determine the terms of the sale of any water pursuant to an order by DPH for the sale, supply or taking of any waters or the temporary interconnection of water mains for the transfer of water among water utilities. - DPUC (if a DPUC regulated water utility)
- Begin implementation of temporary interconnections between water utilities where determined to be necessary. - DPH

- Assist community water systems in exploring alternative sources of water for non-potable uses. DPH/DEP
- Issue emergency and temporary permits, as appropriate, and expedite drought-related emergency requests for water utility interconnections and access to alternative water sources. - DPH/DEP/DPUC
- Undertake physical measures necessary to bring “emergency” and “inactive” sources of water supply on-line. – DPH/Water industry
- Direct municipal drought coordinator to provide situation reports periodically. - OEM
- Identify leaks and focus accelerated repairs and implementation of water efficiency improvements at state government facilities. – Facility managers of all state agencies
- Contact individual, large industrial users to reduce water usage. - Water Utilities
- Evaluate requests for exemption from the Minimum Streamflow Regulations and expedite approval on a case-by-case basis, where the water supply status and the actions of utilities warrant such action. - DEP
- Prohibit aquifer pumping tests unless a) the test is associated with a groundwater remediation project, or b) the test is associated with a replacement well for a previously approved, allocated diversion source, or c) the test is associated with a drinking water supply well necessary to ensure an adequate water supply during this water emergency. - DEP/DPH
- Implement, as needed, the plan for managing potential forest fire hazards and threats. – DEP
- Assess agricultural impacts of worsening drought – DOA/USDA
- Increase public education and information as appropriate for this stage. - Interagency Drought Workgroup/Water Utilities

Monitoring

- Continue Drought Watch Stage monitoring activities.

Coordination

- Work closely with local health directors to assess public health threats and take actions as needed. - DPH
- Provide regular situation status reports to the Federal Emergency Management Agency and the US Army Corps of Engineers regarding drought impacts and response measures being taken by state and local officials. - OEM
- Request the USDA Farm Service Agency to apply for emergency federal agricultural assistance. - DOA
- Prepare a request for a Presidential Disaster Declaration. – OEM and DEP

Preparedness

- Prepare for possible declaration of a drought emergency. - Interagency Drought Workgroup
- Recommendations made to Governor on communications strategy. – Interagency Drought Workgroup
- Develop plans to deliver drinking water to key distribution stations within each municipality. Assess capability and finalize readiness plans for the mobilization of water distribution and storage equipment to armories and other designated locations. Explore alternative means of water delivery during outages. - OEM/CT National Guard/Municipal Drought Coordinators
- Identify unused or underutilized high yield aquifers developable as temporary emergency water supplies. - DEP
- Identify non-essential water uses at Drought Emergency Stage (See Section IV for guidance.) – Interagency Drought Workgroup

D. DROUGHT EMERGENCY STAGE

Drought Stage Criteria

A decision to issue a Drought Emergency shall involve assessing the current and forecasted condition of surface waters, ground waters, reservoirs, soils, and vegetation relative to normal conditions and shall be guided by the following criteria:

Precipitation:	More than six months cumulative below 65% of normal,
Ground Water:	Eight consecutive months below normal,
Streamflow:	Seven months below normal,
Reservoirs:	Average levels less than 50% of normal or less than 50 days of supply.
Palmer Drought Severity Index:	Minus four or less.
Crop Moisture Index:	Minus three or less, severely dry
Fire Danger:	Extreme.

Actions

- Declare a water supply emergency. - Governor/DPH
- Mandate 25% water conservation by residents, businesses, and state agencies. - Governor
- Activate appropriate elements of the CT National Guard as necessary. – Governor
- Secure emergency legislation and funding from General Assembly as needed. - Governor/Drought Task Force
- As appropriate, close woodlands and brushlands to all persons except owners or tenants pursuant to CGS Sec 23-50. - Governor
- Invoke a ban on open burning, in accordance with CGS Sect. 23-49a. - DEP
- Activate as appropriate and staff the State Emergency Operations Center. - OEM

- Coordinate with Governor’s Infoline (211) to respond to public inquiries. - OEM
- Order interconnections between water utilities as needed and where feasible. - DPH
- Utilize authorities under a declared water supply emergency pursuant to Section 22a-378 to undertake actions as needed relative to approving temporary suspension of diversion permits, issuing orders for new diversions. - DEP
- Assist owners of residential wells with drought-related problems and obtaining permits to construct wells or evaluate the feasibility of connecting to a public water supply. - Local Health Officials
- Enforce compliance with mandatory drought restrictions. - Local Drought Coordinators/state and local police with cooperation of local water utilities
- Process applications for exemptions or variances to mandatory drought restriction. - Local drought coordinators (possibly DPH for very large or complex water users)
- Initiate use of “emergency” and “inactive” sources of water supply. – DPH/Water industry
- Issue permits and conditions for the use of Class B waters for drinking water purposes, as necessary, on a case-by-case basis pursuant to CGS Section 22-378 and Section 25-32(b). - DPH/DEP
- Consider substituting non-potable water for potable water where non-potable water is consistent with public health and the environment (see Section V for guidance). - DPH/DEP
- Bring accessible and developable high yield aquifers into production. - DEP
- Administer the emergency transfer, sale, or lease of water throughout the state. - DPH/DPUC
- Initiate transporting and distributing potable water to provide essential water to key municipal emergency potable water stations (trucking water and laying water pipe, as necessary). - OEM/CT National Guard
- Disseminate information and technical assistance for irrigation improvements available under federal emergency programs to agricultural growers. - DOA/USDA

Monitoring

- Continue Drought Warning Stage monitoring activities.

Coordination

- Direct efforts of local health directors relative to conserving, monitoring, and reporting. - DPH
- Request federal USDA to make an Agricultural Disaster Declaration. - DOA
- Apply for federal assistance and funding as appropriate. - Governor/OEM/Interagency Drought Task Force
- Identify alternative potable water sources; improve distribution and transmission of potable water; divert water from current sources; and bridge existing water

- systems, including the determination of appropriate methods for financing emergency drinking water operation. - Interagency Drought Workgroup
- Submit a request for a Presidential Disaster Declaration to the Federal Emergency Management Agency. - OEM and DEP

E. POST DROUGHT ACTIONS

The primary objectives of the post drought stage are to maintain, as far as possible, the resources affected by drought, and to assist in the post-drought return and restoration of those resources, taking into consideration resource maintenance and long-term sustainability.

- Administer available funding of federal long-term drought relief. - OEM/OPM
- Provide risk management programs to assess the financial condition of individual agricultural enterprises and give alternatives for operators to utilize in drought recovery. - DOA/UCONN Extension
- Follow-up with drought-impacted community water systems to restore operations and to ensure that drought-driven system improvements and modifications are in compliance with applicable standards. - DPH
- Prepare report summarizing the drought-related issues for the governor and commissioners, to include an assessment of activities undertaken to mitigate drought impacts, successes realized and recommended improvements. -- Interagency Drought Workgroup.
 - A. Recommend improvements to economic impact assessment tools.
 - B. Recommend appropriate amendments to state legislation and municipal ordinances.
 - C. Recommend programs to encourage efficient use of potable waters.
 - D. Recommend the level of resource monitoring that is needed to establish accurate baseline conditions.
 - E. Conduct lessons learned with agencies, interagency Drought Working Group, water utilities and other stakeholders. When appropriate, end use of class B sources and emergency reservoirs and wells.
 - F. Improve drought preparedness and response plan as needed.

V. Non-Essential Uses

DROUGHT ADVISORY, WATCH, and WARNING STAGES

Below is a listing of non-essential uses for the Emergency Stage of a drought. It is assumed that most, if not all, of these non-essential uses would be banned during a Drought Emergency Stage. However, some of these non-essential uses would be curtailed during a Drought Advisory Stage, a Drought Watch Stage, or a Drought Warning Stage. The non-essential uses and the degree of curtailment will be determined at the time each stage is entered based upon the specific circumstances determined at that time.

The delineation of non-essential uses during these earlier phases is dependent upon seasonality, water supply capacity of a particular water utility, and the variability of the severity of a drought within the state. As a result, the Interagency Drought Working Group will make determinations based upon the unique conditions, drawing from this list.

It is believed that this flexible approach is desirable so there would be no rigid “do’s” and “don’ts” that would entail unnecessary hardship during the various early stages of a drought. This approach should enable the proper authorities to determine at what point in each of the stages certain non-essential water uses should be curtailed or banned.

DROUGHT EMERGENCY STAGE

If water use demands remain at levels that cannot be sustained under current and forecasted conditions despite the coordinated water management measures implemented in previous drought stages the following restrictions and authorizations are recommended. It should be recognized that during the most severe emergency even these activities may be curtailed.

Emergency restrictions and authorizations shall apply equally to all water users in the affected regions, regardless of whether the water used is drawn from ground or surface water (such as a pond, lake, river or stream), a public water supplier, or a private well. However, this statewide emergency does not prevent any local government from instituting water use restrictions that are more stringent, provided the local restrictions do not conflict with state or federal law.

Hardship exemptions from the restrictions on water use imposed during an emergency may be obtained in accordance with procedures established by the local municipality.

Municipal and state law enforcement agencies shall be responsible for enforcement of these emergency restrictions.

Due to the severity of the continuing drought conditions, all residents, visitors, businesses and government agencies must fully comply in a cooperative effort to avoid a more serious water shortage by compliance with the following restrictive measures.

1. The serving of water in restaurants, clubs or eating places is prohibited, unless specifically requested by the patron.
2. The washing of any vehicles other than fire engines, and HAZMAT vehicles is prohibited, except in the following cases:
 - A. Washing of vehicles performed by a commercial enterprise engaged in car washing is permitted, provided the following requirements are met:
 1. Vehicles shall not be pre-rinsed except with recycled water;
 2. Rinse cycles shall be forty (40) seconds or less per vehicle. This may be accomplished by increasing conveyor speeds;
 3. Additional measures shall be implemented to minimize water use, such as reducing the size of water nozzles where possible and plugging all unnecessary out-flows;
 4. All fixtures and equipment shall be inspected for leaks on a daily basis. Necessary repairs shall be made immediately; and
 5. Water conservation awareness shall be encouraged by the car wash operators by the placement of posters and literature where customers and employees will have access to them.
 - B. Washing of vehicles at car dealerships is permitted, provided the following requirements are met:
 1. Except as set forth in 5. below, vehicles may only be washed just prior to delivery to customers or prior to placement in display showrooms;
 2. The amount of water used shall be the minimum necessary, and rinse time shall be no longer than 2 to 3 minutes;
 3. All hoses must not leak and shall be equipped with a hand-held nozzle that automatically shuts off when released;
 4. Wash and/or rinse water shall be recycled to the extent practicable; and
 5. New vehicles at a dealership may be washed in accordance with the conditions at 2. through 4. above once per month if necessary to preserve the vehicle's finish.
 - C. Washing of boats at boat dealerships and marinas is permitted, provided the following requirements are met:
 1. Except as set forth in 5. and 6. below, boats may only be washed just prior to delivery to customers or prior to placement in display showrooms;
 2. The amount of water used shall be the minimum necessary, and rinse time shall be no longer than 2 to 3 minutes per area washed;

3. All hoses must not leak and shall be equipped with a hand-held nozzle that automatically shuts off when released;
 4. Wash and/or rinse water shall be recycled to the extent practicable;
 5. Boat bottoms may be cleaned using a powerwasher in accordance with 2., 3., and 4. above.
 6. New boats at a dealership may be washed in accordance with the conditions at 2. through 4. above once per month if necessary to preserve the boat's finish;
 7. Boats at a marina may be washed to remove salt spray and for sanitary reasons;
 8. Marine engines may be flushed with fresh water; and
 9. Trailered boats must be washed at a commercial car wash.
3. The use of water for washing paved surfaces, such as streets, roads, sidewalks, driveways, garages, parking areas and patios is prohibited, except in the following cases:
 - A. Water use for roadway milling, and for the preparation of asphalt street or driveway re-coating and sealing, is permitted, provided the amount of water used is the minimum necessary;
 - B. Washing of paved surfaces at eating and drinking establishments is permitted for sanitation purposes, provided the amount of water used is the minimum necessary;
 - C. Use of water for municipal street sweeping is permitted, provided that only non-potable water is used, the amount of water used is the minimum necessary; and an appropriate sign is prominently displayed on the street sweeping vehicle, clearly indicating that the water used is non-potable water; and
 - D. Where the municipal or county health department deems that such washing is necessary to avert a threat to public health, and provided that the amount of water used is the minimum necessary.
4. The use of water for the flushing of sewers is prohibited, except in the following cases:
 - A. Where non-potable water is utilized, provided that the amount of water used is the minimum necessary, and provided that an appropriate sign is prominently displayed, clearly indicating that the water used is non-potable water; and
 - B. Where the municipal or county health department deems that flushing is necessary to avert a threat to public health.
5. The use of fire hydrants is prohibited, except in the following cases:
 - A. As necessary for fire fighting or fire protection purposes;

- B. As necessary for testing or fire drills only if the testing or drill is deemed necessary in the interest of public safety by the municipal governing body and the applicable water purveyor, and is specifically approved by the municipal governing body and the applicable water purveyor; and
 - C. Where a commercial enterprise has traditionally used water from the hydrant with prior written permission from the applicable water purveyor, provided that such use is necessary for the maintenance of the business. If a hydrant is used in this manner, water usage shall be metered.
6. The use of water for power washing of buildings, vehicles, pavement, or other surfaces is prohibited, except if the power washing is performed by a commercial enterprise engaged in power washing or where the power washing is required by law, as in the case of a dairy operator. A commercial enterprise performing power washing shall comply with all applicable limits relating to specific power washing activities. For example, a commercial power washing business engaged in washing cars at a car dealership shall comply with the limits for car washing at car dealerships set forth at 2B above.
7. The outdoor use of any water for ornamental or aesthetic purposes, including fountains, artificial waterfalls and reflecting pools, is prohibited, except if necessary to preserve or support wildlife, or for sanitary or structural purposes where draining is impractical.
8. The watering of lawns is prohibited except in the following cases:
- A. Lawn watering is permitted in order to establish and maintain newly laid sod or newly seeded grass associated with new construction (this exemption shall not apply to seeding over existing lawn areas), within the following limits:
 - 1. The amount of water used shall be the minimum necessary to establish and maintain the grass;
 - 2. The watering is permitted for the first 45 days only, starting on the date of planting or of laying the sod. Documentation of the date of seed planting or sod laying shall be produced upon the request of the appropriate authorities;
 - 3. The watering may occur only between 6:00 A.M. and 9:00 A.M. and between 5:00 P.M. and 8:00 P.M.; and
 - 4. The watering shall not exceed 45 minutes per area watered on any one day, except that watering may be extended to one hour per area watered on the day that sod is laid.
 - B. Commercial application of fertilizers, pesticide or herbicides that require water usage should cease. If such application preceded the drought restriction the following limits should be imposed.

1. The amount of water used shall be the minimum necessary to ensure the appropriate absorption of the fertilizer, pesticide or herbicide;
 2. The watering is permitted for 2 days only, starting on the date that the chemical is applied. Documentation of the date of application shall be produced upon the request of the appropriate authorities;
 3. The watering may occur only between 6:00 A.M. and 9:00 A.M. and between 5:00 P.M. and 8:00 P.M.;
 4. The watering shall not exceed 45 minutes per area watered on any one day; and
 5. This exemption shall only be valid for a single chemical application once every three months.
- C. A commercial landscaper may water newly seeded or sodded grassed areas during normal seasonal working hours outside of the hours listed above, by a means designed and operated to assure effective conservation, provided that:
1. Watering is performed in accordance with the following practices. Water needs vary considerably among the turf grasses. Consider this when establishing a lawn, for it may significantly reduce irrigation needs during the summer.
 - Lightly water newly seeded or sprigged lawns at frequent intervals. Keep the seed or sprigs moist but not saturated during this initial growth period. This may require watering four or five times on hot, windy days.
 - The first 10 days to 2 weeks are especially critical. If young plants dry out, they may die. After a couple of weeks root system development should be well under way and the watering frequency can be slowly reduced. At about 1 month after seedling or sprigging the lawn it should be treated as an established lawn.
 - Water newly sodded lawns much like established lawns except more frequently. After the sod is applied, soak it with enough water so that the soil under the sod is wet to a depth of 2 to 3 inches. Each time the sod begins to dry out, re-soak it. Roots develop fairly rapidly and within 2 weeks or so the sod can be treated like an established lawn.
 - Ideally, a lawn should be watered just before it begins to wilt. Most grasses take on a dull purplish cast and leaf blades begin to fold or roll. Grass under drought stress also shows evidence of tracks after someone walks across the lawn. These are the first signs of wilt. With careful observation and experience, one can determine the correct number of days between waterings.

- Early morning is considered the best time to water. The wind is usually calm and the temperature is low so less water is lost to evaporation. The worst time to water is late evening because the lawn stays wet all night, making it more susceptible to disease.
- When watering a lawn, wet the soil to a depth of 4 to 6 inches. Soil type affects the amount of water needed to wet soil to the desired depth.
- It takes about 1/2 inch of water to achieve the desired wetting depth if the soil is high in sand, and about 3/4 inch of water if the soil is a loam. For soils high in clay, an inch of water is usually necessary to wet the soil to the desired depth.
- If waterings are too light or too frequent the lawn may become weak and shallow-rooted, which in turn makes it more susceptible to stress injury.
- Use the following steps to determine the amount of water the sprinkler or sprinkler system puts out and check its distribution pattern at the same time.
- Determine the rate at which the sprinkler applies water to the lawn.
 - Set out three to five empty cans in a straight line going away from the sprinkler. Set the last can near the edge of the sprinkler's coverage.
 - Run the sprinkler for a set time such as 1/2 hour.
 - Measure the amount of water in each can.
 - Each can will contain a different amount of water. Usually, the can closest to the sprinkle will have the most water. The sprinkler pattern must overlap to get an even wetness of the soil. Use this information to find out how long it takes the sprinkler to apply 1 inch of water. For example, if the can contains about 1/4 inch of water after the sprinkler runs 1/2 hour, it would take $4 \times 1/2$ or 2 hours to apply 1 inch.
- Run the sprinkler or sprinkler system long enough to apply at least 1 inch of water or until runoff occurs. If runoff occurs first:
 - Stop sprinkler and note running time.
 - Allow water to soak in for 1/2 hour.
 - Start sprinkler.
 - If runoff occurs, repeat above steps until at least 1 inch of water has been applied and allowed to soak into the soil.
- Do not water again until the lawn has completely dried out. (This usually takes 5 or 6 days.)

- Apply enough water to wet the soil to a depth of 4 to 6 inches.
 - Avoid frequent light applications of water.
 - Water in early daylight hours.
 - Select a turfgrass with a low water requirement.
 - Avoid using soluble nitrogen fertilizers. (They promote high growth rates, which in turn, increase water requirements of the plant.)
- Many soils will not take an inch of water before runoff occurs. If this is a problem with a lawn, try using a wetting agent, also called a surfactant, which reduces the surface tension of water making it "wetter." This "wetter" water runs into the soil at a faster rate and goes deeper than water in a non-treated soil.
 - There are a number of wetting agents available; apply them according to directions on their labels. If this does not solve to runoff problem, it may be necessary to apply 1/2 inch one day and 2 inches the next day.
2. During the initial 45 day grow-in period a sign shall be displayed on the front lawn of the property. The sign shall be at least four feet wide by four feet high, with lettering large enough to be clearly visible from the nearest road. The sign shall read:

AUTHORIZED LIMITED WATERING OF NEW LAWN

Company Name

Address

Telephone Number

3. Documentation of the planting date shall be produced upon the request of the appropriate authorities.
- D. Lawn watering is permitted if it is necessary for the revegetation of land in order to prevent soil erosion following earth-moving activities, provided that:
1. The amount of water used shall be the minimum necessary to accomplish the revegetation;
 2. The activity is a construction-related project that complies with the *Connecticut Guidelines for Soil Erosion and Sediment Control, 2002*, of DEP;
 3. The watering is limited to the disturbed area; and
 4. Documentation of the planting date shall be produced upon the request of the appropriate authorities.

E. Testing of a customer's newly installed or newly repaired sprinkler system by a commercial enterprise engaged in the installation or repair of lawn irrigation systems is permitted, within the following limits:

1. The amount of water used shall be the minimum necessary to test the sprinkler system,
2. The test shall be limited to a maximum of ten (10) minutes per sprinkler zone, and
3. During the period of the test a sign shall be displayed on the front lawn of the property. The sign shall be at least four feet wide by four feet high, with lettering large enough to be clearly visible from the nearest road. The sign shall read:

AUTHORIZED LIMITED TESTING OF SPRINKLER SYSTEM
Company Name
Address
Telephone Number

F. All lawn watering authorized herein shall use the minimum amount of water necessary.

G. All lawn watering authorized herein shall be performed in such a way that no puddling or runoff of water occurs.

H. All lawn watering authorized herein shall be performed in such a way that no paved surfaces are included in the area watered.

9. The watering of vegetation other than lawns is prohibited, except that the watering of trees, shrubs, and vegetable or flower gardens is permitted, using the minimum amount of water necessary, within the following limits:

A. The water shall be applied with one of the following:

1. A watering can; or
2. A hose that does not leak, and is equipped with a hand-held nozzle that automatically shuts off when released.

B. All watering authorized herein shall use the minimum amount of water necessary.

C. All watering authorized herein shall be performed in such a way that no puddling or runoff of water occurs; and

D. All watering authorized herein shall be performed in such a way that no paved surfaces are included in the area watered.

10. Watering of athletic playing fields, including those used by professional, college/university and youth league sports teams, as well as those owned or operated by public and private schools and parks, is permitted within the following limits:
 - A. Watering may occur only between 8:00 P.M. and 6:00 A.M.;
 - B. Watering may not exceed 45 minutes per area watered on any one day;
 - C. No grass or dirt areas outside of the essential playing area may be watered;
 - D. Under no circumstances shall a water cannon be used; and
 - E. Water conservation measures shall be instituted to the maximum extent practicable.

11. The watering of agricultural food crops, sod at commercial sod farms, and the watering of nursery stock at nurseries or retail outlets is permitted and is exempt from restrictions at this time, provided that all watering is done in accordance with best management practices (See Appendix A), and:
 - A. The use and diversion from all sources is less than 50,000 gallons per day and
 - B. Any use and diversion of 50,000 gallons per day or more authorized by CGS Section 22a-368 et al of the Water Diversion Policy Act.

12. The use of water for outdoor recreational purposes, not covered by paragraph 10, is prohibited, except that:
 - A. Golf courses covered by a valid DEP Water Diversion Permit or Registration may use water within the following limits:
 1. For tees, greens, and fairways, watering by sprinkler or other conserving mechanical means is permitted between 9:00 P.M. and 6:00 A.M., provided that the amount of water used is the minimum necessary for vegetation survival;
 2. Hot spot watering (syringing) with a hand held hose is permitted between 11:00 A.M. and 4:00 P.M., provided that no area is watered for more than 10 minutes per day;
 3. If seeding or resodding is necessary, newly seeded or sodded fairways may be watered between 9:00 A.M. and 4:00 P.M., provided that no area may be watered for more than 45 minutes on any given day;
 4. Rough or other grass areas not addressed above may not be watered by any means;
 5. Under no circumstances shall a water cannon be used;

6. Watering shall be done in accordance with Connecticut DEP Best Management Practices for Golf Course, Special Water Report No. 37, Connecticut Institute of Water Resources, UCONN, and
 7. Under no circumstances shall total monthly cumulative water use exceed 50% of either the monthly allocated water for that golf course, or the average utilization rate the past 5 years, whichever is lower, based on the permit or registration issued by the Department. Metered usage from all water sources shall be submitted to the Inland Water Resource Division of DEP on a monthly basis, within 7 days of the end of the calendar month.
- B. Golf courses that use treated wastewater only for irrigation are exempt from these restrictions.
- C. Watering of clay tennis courts is permitted, using sprinklers or hand-held watering devices, provided that watering occurs for no more than 10 minutes per day, between 8:00 P.M. and 6:00 A.M. and/or between 12:00 noon and 3:00 P.M.
- D. Filling of family, public and private swimming pools, including but not limited to outdoor hot tubs, spas, jacuzzis, is prohibited, except in the following cases:
1. Newly constructed or installed swimming pools may be filled once upon completion of construction, provided that, if the water is from the local municipal water purveyor, its use is approved by that purveyor;
 2. A pool that was drained prior to the declaration of the emergency may be refilled once;
 3. A pool that was not drained prior to the declaration of the emergency may not be drained and refilled unless the draining is necessary in order to make structural or other essential repairs, or draining is the only way that the pool can be adequately cleaned for healthy operations;
 4. If a pool requires repairs in order to preserve the structural integrity of the pool and/or its supporting infrastructure, the pool may be drained for repair and subsequently refilled one time only. A person seeking to use water for this purpose shall notify the local police, fire, and public works departments prior to draining the swimming pool to provide notice to authorities and provide for an opportunity for reuse in accordance with 5. below;
 5. Every reasonable effort shall be made to collect and re-use water drained from a pool, including use by the local fire department or public works department;
 6. Topping of pools (that is, adding water to a partially filled pool) is permitted, provided that the amount of water used is the minimum

necessary to maintain the integrity of the pool's circulation and filtration system(s); and

7. Pools should only be drained if absolutely necessary.

VI. Guidance for the Use of Non-Potable Water

DEP and DPH will consider the use of non-potable water as an alternate source for activities currently supplied by potable sources, where appropriate and consistent with public health and the environment. Water pollution control facilities may make available, for temporary use, treated effluent which meets all of its National Pollutant Discharge Elimination Systems (NPDES) permit requirements, as a substitute for potable water sources, after consideration of the following guidance:

- The domestic treatment works must be in compliance with its existing NPDES discharge permit;
- Prior to allowing the re-use of its effluent, the treatment works must obtain written approval from the Department of Public Health after coordination with the Department of Environmental Protection. The written approval must be issued after the declaration of an emergency;
- Any decrease in the treatment works' effluent discharge into a receiving water body, caused by re-use of effluent, shall not jeopardize the base flow of the receiving water, nor shall it impact downstream natural resources or water supply withdrawals;
- Recommended applications include: landscaping beds, street sweeping, nurseries, non-edible crops, golf courses, and roadside plantings,
- Unless specifically approved in writing by the Department of Public Health, prohibited applications include: residential lawns and other recreational areas, indoor use, edible crops, or any area where there is a high probability of immediate human contact;
- The application of treated effluent shall not produce surface runoff or ponding;
- Individuals spraying the effluent should use proper care and precautions so as not to come in contact with or inhale the aerosolized water vapors;
- Treated effluent shall be sprayed only in areas, and at times, which would have limited or no public access;
- Prior approvals for re-use where authorized in a NPDES permit remain valid except where the treatment plant discharge is upstream of an area for which the Department of Environmental Protection has established a minimum required passing flow for the receiving water body, which is not being met. In those cases, prior approvals are revoked for the duration of the declared water emergency;
- Where treated effluent is in use, signs shall be posted informing the public that the water being applied is treated effluent;
- Domestic treatment works shall maintain a list of users of treated effluent. The list shall include the name of the user, date of pickup, number of gallons used, and the location and means of disposal; and
- Re-use of treated effluent shall not be considered a basis for increasing permitted capacity for a treatment works.

APPENDIX A

MANUAL OF BEST MANAGEMENT PRACTICES FOR AGRICULTURE GUIDELINES FOR PROTECTING CONNECTICUT'S WATER RESOURCES

Connecticut Department of Environmental Protection, U.S. Soil Conservation Service,
and Connecticut Council on Soil and Water Conservation

1993

(The U.S. Soil Conservation Service's name was changed to U.S. Natural Resource Conservation Service subsequent to development of these guidelines in 1993)

Irrigation Water Management

Definition

Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner. "Amount planned" in schedule of implementation measured in number of acres.

Purpose

To efficiently apply irrigation water to crops in a manner to conserve water, prevent soil erosion, and minimize leaching and runoff transport of nutrients and/or pesticides to ground water and surface water respectively.

Where Used

This practice should be followed whenever irrigation is used to meet the moisture requirements of crops being grown.

Water Quality Impacts

Improper irrigation can result in serious degradation of surface and ground water quality. Careful irrigation management can minimize leaching and reduce the potential for pesticide and nutrient contamination of ground water, and decrease runoff, erosion, and transport of nutrients and pesticides to surface water.

Planning Considerations

The first step in planning an irrigation system is the development of a water budget and water balance for the crop to be irrigated. The Soil Conservation Service (SCS) and/or the Cooperative Extension System (CES) can provide assistance. Sources of water, various adaptable irrigation systems, and the economics of operation need to be considered.

An irrigation system may be portable, or it may be established on the land to be irrigated.

System components may include wells, a storage reservoir, a conveyance system, a sprinkler or trickle application system, suitable pumps, and a recycle storage pond to capture irrigation water down slope of the operation. Refer to Standards and Specifications for these components in the SCS Field Office Technical Guide (FOTG), Chapter 15 in the Engineering Field Manual, and the Conservation Irrigation Guidelines for Massachusetts (SCS).

If fertilizers and/or pesticides are to be applied through irrigation systems (chemigation) consult with CES specialists for guidance. A chemigation system must be developed and operated with extreme care to prevent contamination of source water drawn from wells. Chemigation can allow nutrients and pesticides to be timed according to crop needs rather (Management – 1993) than physical application constraints, but the ease of application may also lead to overuse. It is critical, therefore, that plant nutrients applied through chemigation only be used in accordance with an approved plant nutrient management plan. Likewise, pesticides applied through chemigation must only be used in accordance with an approved pest- and pesticide management plan, which incorporates the principles of integrated pest management.

To minimize potential contamination of ground and surface water by irrigation consider the following:

1. Location of watercourses, wells, and wetlands relative to area irrigated, and need for vegetated separating distances. Vegetated separating distances between irrigated areas and wetlands should be at least 25 feet. On sloping land and next to sensitive or pristine wetlands, the separating distance should be increased.
2. Permeability of soils and leaching potential to ground water.
3. Runoff potential to transport nutrients or pesticides to surface waters.
4. Best management practices needed to control surface runoff, curtail erosion, and minimize leaching. Refer to the Plant Nutrient Management and Pest and Pesticide Management BMPs to determine nutrient and pesticide needs and application timing.
5. Use of an irrigation system such as trickle or drip irrigation, which allows the operator to precisely control the amount and timing of water delivery to the crop. A system, which prevents excess delivery of water, will minimize leaching of chemicals.

Consider water source quality (possible testing), capacity volume, and availability in late summer months.

Planning Criteria

The irrigator shall have the knowledge and capability to manage and apply irrigation water in such a manner that the objectives mentioned under "Purpose" can be reasonably attained. The knowledge should include:

1. Knowledge and ability to develop and use water budgets and water balances for each crop grown.
2. How to adjust stream size, application rate, or irrigation time to compensate for changes in such factors as intake rate or the amount of water to be applied.
3. How to recognize erosion caused by irrigation.
4. How to estimate the amount of irrigation runoff from an area.
5. How to evaluate the uniformity of water application.

Install backflow prevention devices on all systems.

The operator needs to apply for and secure any local; state, or federal permits needed for a storage reservoir before construction.

The operator needs to apply for and secure a state Water Diversion Permit for water withdrawals of more than 50,000 gallons during any 24-hour period, or for construction of any pond, which will receive its water supply from a wetland or watercourse. The Division of Inland Water Resources in DEP's Bureau of Water Management is responsible for issuing diversion permits.

Plans and Specifications

An irrigation water management plan needs to be developed and shall be in keeping with the purpose and principles in this standard. Any permits as noted above, must be secured.

SCS will provide technical assistance on planning and designing components of an irrigation system.

APPENDIX B

POSSIBLE FUTURE WORK ITEMS FOR DROUGHT PLAN

1. Improve the continuity of the nomenclature, triggers and actions between the state drought plan and nomenclature, triggers and actions of the individual drought plans.
2. Ensure adequate state and municipal authority is in place to implement in a timely manner the water use restrictions. This will entail the enactment of local ordinances for enforcement and evaluating the adequacy of agency statutory authority well in advance of the next drought.
3. Expand the state plan to address agriculture and non-utility water usage.
4. Develop a more precise, pre-prepared and coordinated multi-media outreach strategy.
5. Clarify and detail the information and reports required of utilities and municipal coordinators in order to adequately assess problems and success in the implementation of restrictions in each of the various drought stages.
6. Establish or verify the feasibility and method to readily establish information needed during a drought emergency; (e.g. municipal drought coordinators, bottled water purveyors, approved water haulers.)
7. Ensure opportunities to use flood control reservoirs are integrated into individual and areawide plans in order to have timely access to such resources.
8. Clarify the representation, role and responsibility of the Drought Task Force to be established in the more advanced stages of a drought.
9. Improve and maintain integrity of water resource monitoring data that is essential to an accurate assessment of drought conditions.
10. Enable the conversion of county data of National Weather Service or other agencies to substate regions more responsive to drought conditions and areawide water resource and distribution systems.
11. Explore appropriateness of adopting regulations to implement water use restrictions.