

APPENDIX 1 TO THE OHIO EMERGENCY OPERATIONS PLAN

OHIO DROUGHT RESPONSE PLAN

JANUARY, 1994

DEVELOPED BY

THE OHIO EMERGENCY MANAGEMENT  
AGENCY IN COOPERATION WITH STATE,  
FEDERAL AND LOCAL GOVERNMENTAL  
ORGANIZATIONS

# STATE OF OHIO EMERGENCY OPERATIONS PLAN

## HAZARD SPECIFIC APPENDIX FOR DROUGHT

### I. PURPOSE

The purpose of this plan is to provide an effective and systematic means of assessing and responding to a drought.

### II. SITUATION AND ASSUMPTIONS

#### A. Situation

Drought is a cyclical weather phenomenon which can have a profound effect upon the State of Ohio. It is progressive in nature, and its presence may not be recognized until it has reached a severe level.

Drought impacts the State with a variety of complex problems, which, if identified and evaluated, can be dealt with in a well organized manner.

The most significant impacts which confront the State are in the areas of agriculture, forestry, fish and wildlife, recreation and tourism, public and private water supplies, water quality, and economic impacts.

This plan is based upon current legislation and authorities which do not provide for the mandatory allocation of water supplies by the State.

1. Drought is defined as a prolonged period of abnormally dry weather, where the lack of sufficient precipitation causes a serious hydrologic unbalance, having economic and/or social consequences which may affect all or a portion of the State of Ohio.
2. Drought severity depends upon the degree of moisture deficiency, the duration, and the size of the effected area.
3. Drought is considered a meteorological phenomenon rather than the results of underdeveloped public water supply systems.
4. The State of Ohio monitors precipitation, groundwater levels, stream flows, snowpack, and water quality and utilizes the Palmer Drought Severity Index and other indices to ascertain drought potential.
5. Ohio receives an annual average of 37.57 inches of precipitation which recharges ground water and reservoirs. Extended droughts severely diminish the amount of water in streams, reservoirs and aquifers.

6. The population of Ohio is equally dependent on public ground water systems or private wells and surface water for their water supply.
7. Ohio is divided into ten climatological divisions. (Attachment 2)

B. Assumptions

1. Drought creates unusual management problems due to the uncertainty surrounding its occurrence, duration, magnitude and severity.
2. Local preparedness, community action and cooperation are keys to coping with a water shortage.
3. Local governments will cooperate fully with water conservation recommendations made by the State of Ohio.

### III. CONCEPT OF OPERATIONS

A. General

1. Droughts can be categorized into three different types, each one affecting the other: Agricultural, Hydrological, and Mathematical.
  - a. **Agricultural Drought** is a moisture deficiency seriously injurious to crops, livestock, or other agricultural commodities.
  - b. **Hydrological Drought** is evidenced by reductions in streamflow and in lake and reservoir levels, depletion of soil moisture, a lowering of the ground-water table and consequently a decrease in ground-water discharge to streams and lakes.
  - c. **Mathematical Drought** is a computation in which rainfall deficiencies are expressed.
2. Three indicators are frequently utilized, along with specific water resource information, to determine drought conditions.
  - a. **Crop Moisture Index** measures soil moisture to a depth of approximately five feet (5') and is the most commonly used indicator of short-term drought affecting agriculture and field operations.

- b. **Palmer Hydrological Drought Index** measures the reduction in streamflow and lake and reservoir levels, and the lowering of groundwater levels.
- c. The **Palmer Drought Severity Index** depicts prolonged abnormal dryness or wetness over a period of months or years. The index reflects long-term moisture, runoff, recharge, precipitation, deep percolation and evapotranspiration. It is useful in measuring disruptive effects of prolonged dryness or wetness on water sensitive economies, designating disaster areas of drought or wetness, and reflecting the general long-term status of water supplies in reservoirs and streams.
- d. Levels for Crop Moisture and Drought Severity Indices are listed in Attachment 3.

B. Phases of the Drought Response System

State of Ohio response to a drought situation whether agricultural and/or hydrological has been divided into four phases:

- 1. Phase I - Normal Conditions
  - a. A drought monitoring and assessment system is required to provide enough lead time for State and local decisionmakers to take appropriate actions.
  - b. During normal conditions, the Department of Natural Resources (DNR), the National Weather Service (NWS), and the Environmental Protection Agency (EPA) will supply water monitoring information to the Emergency Management Agency (EMA) on a monthly basis.
- 2. Phase II - Drought Alert
  - a. When the Palmer Drought Index reads - 1.0 to -2.0 and streamflow, reservoir levels, the ground-water levels are below normal over a several month period, and/or the Drought Assessment Committee (DAC) determines Phase II activities as listed in Attachment 7 are required, then the Governor will be requested to make a drought alert declaration.
  - b. The Drought Alert may be issued for all or a portion of the State of Ohio based on data collected. Conditions would indicate the potential for a serious water shortage or agricultural emergency

with below normal precipitation and declining streamflows and ground-water levels normal levels are expected over a period of one to two months.

c. **Drought Assessment Committee (DAC)**

The Deputy Director of EMA will activate and chair the DAC, consisting of representatives from the following agencies:

- 1) Department of Natural Resources (DNR), Division of Water
- 2) Environmental Protection Agency (EPA), Division of Public Drinking Water
- 3) Department of Agriculture (DA)
- 4) Emergency Management Agency (EMA)
- 5) Ohio State University Extension
- 6) State of Ohio Climatologist
- 7) National Weather Service (NWS) (Columbus)
- 8) Agriculture Stabilization and Conservation Service (ASCS)
- 9) Public Utilities Commission of Ohio (PUCO)
- 10) United States Army Corps of Engineers (represented divisions and districts will be determined in coordination with DNR)
- 11) Ohio Department of Health (ODH)

d. The Drought Assessment Committee shall carry out these and other tasks as assigned.

- 1) Provide a reporting system format and regularly issue reports on drought status through Phases II-IV of a drought.
- 2) Identify resource information gaps and make recommendations for improvement.

- 3) Provide a water availability report, comprised of information on precipitation, streamflow, reservoirs, ground-water levels, reports of dry or impacted wells, and forecasted weather EMA will provide the report to the Governor.
- 4) Provide supplemental reports whenever a significant weather event occurs or as requested.
- 5) Place continuous emphasis on improvement of the Committees' capability to provide accurate and timely assessments of water availability or agricultural deficiencies.
- 6) Recommended the activation of and coordinate with representatives of Impact Task Forces for the development of additional assessment information and the identification of emergency needs.
- 7) Make recommendations to the Governor concerning state-level response and recovery.
- 8) Notify other governmental and private organizations and the Drought Executive Committee as needed concerning the activation of the DAC, and provide them with regular updates on the situation.
- 9) Monitor trends and serve as the technical advisor for State and local decisionmakers.
- 10) Provide public information for the public and media.
- 11) Make recommendations relating to proposed State actions, including the activation of Impact Task Forces to monitor and review potential impacts on the State's agricultural, economy, environment, and natural resources.
- 12) Review, approve, and provide updated information for Drought Appendix.
- 13) Identify resource deficiencies that may aggravate drought effects.
- 14) Coordinate with Governor's Office and other organizations as needed to develop drought legislation.

- 15) Request that representatives from other State or federal agencies be included on the committee.

e. **Impact Task Forces**

- 1) Agriculture
- 2) Wildfire
- 3) Fish and Wildlife
- 4) Recreation and Tourism
- 5) Public Water Supplies
- 6) Economic Impacts

- f. The Drought Alert would be rescinded once rainfall, streamflows, reservoir levels, and ground-water levels return to normal or near normal levels for that time of the year. The Palmer Drought Severity Index would be above -1.0.

3. Phase III - Conservation Phase

- a. Phase III is activated when the Palmer Drought Severity Index is between -2 to -4 and/or when the DAC determines that Phase III activities as listed in Attachment 7 to this Appendix are required. Streamflows, reservoir levels and ground-water levels continue to decline, and forecasts indicate an extended period of below normal precipitation.
- b. During Phase III monitoring, oversight, and analysis activities, particularly by the Task Forces, are increased. Water conservation measures are increased. Partial activation of the State EOC may occur depending upon the needs/requests of citizens and public officials in drought stricken areas of the state.
- c. The Conservation Phase would return to a Drought Alert when precipitation increases, streamflows, reservoir levels, and ground-water levels stop their decline and the Palmer Drought Severity Index begins to rise to -2.0 or higher or when the DAC determines Phase II actions are required. Extended forecasts should indicate a return to normal conditions.

4. Phase IV - Drought Emergency

a. Phase IV is activated when the Palmer Drought Severity Index is lower than -4 and/or when the DAC determines that Phase IV activates as listed in Attachment 7 to this appendix are required. The Governor may issue a Drought Emergency when water supplies are inadequate to meet projected demands and extreme measures must be taken. Forecasts would indicate that precipitation levels, streamflows, reservoir levels, and ground-water levels will continue to decline.

b. The Governor's declaration empowers State agencies to review allocation of supplies in communities not adequately responding to their water shortage; and to implement emergency programs and actions as provided in the Ohio Revised Code.

(Refer to IV. Organization and Assignment of Responsibilities and Attachment 7 in this Appendix for additional responsibilities.)

c. **Drought executive Committee (DEC)**

The Governor may activate the DEC.

The DEC is chaired by the Adjunct general and will meet on a regular basis for the purpose of administering and coordinating drought assistance in Ohio. It is charged with developing short and long-term recommendations and options for the Governor as they relate to agricultural assistance and protection of public and private water supplies. Recommendations and options will be based upon data provided by the Drought Assessment Committee (DAC).

The DEC consists of the following representatives:

- 1) Director, Department of Natural Resources
- 2) Director, Environmental Protection Agency
- 3) Director, Department of Health
- 4) Director, Department of Agriculture
- 5) Director, Department of Commerce
- 6) State Representative - as named by the Speaker of the House.
- 7) State Senator - as named by the President of the Senate
- 8) Attorney General
- 9) Administrator, Bureau of Employment Services
- 10) Chairman, Public Utilities Commission of Ohio

- d. The Drought emergency will be rescinded and will return to the Conservation Phase when precipitation levels, streamflows, reservoir levels, and ground-water levels increase and the Palmer Drought Severity Index begins to rise above -4.0. Extended forecasts should indicate normal conditions over a four-week period before the emergency is lowered to the Conservation Phase.

C. Activation of the State Emergency Operations Center

1. In accordance with the provisions of the Ohio Emergency Operations Plan (Ohio EOP), the State Emergency Operations Center (EOC) may be operating at various levels of activation throughout a drought in accordance with four Crisis Action System (CAS) levels in the State EOC for state-level hazards assessment and response.
  - a. CAS 1 - Normal monitoring (Phase I)
  - b. CAS 2 - DAC monitoring (Phase II)
  - c. CAS 3 - Partial EOC activation as recommended by DAC to Governor (Phase III)
  - d. CAS 4 - Full EOC activation as recommended by DAC to Governor (Phase IV).
2. Refer to Ohio EOP, Annex A, Direction and Control, for general information on Emergency Operations Center activation and procedures.

#### **IV. ORGANIZATION AND ASSESSMENT OF RESPONSIBILITIES**

A. Organizational Overview

1. Federal
  - a. The following organizations of the federal government may assist Ohio during drought emergencies with a variety of loans, grants and programs for material and personnel support. (Refer to Attachment 5, Disaster Assistance Programs, Part II, Federal Programs.)
    - 1) U.S. Dept. of Agriculture
    - 2) U.S. Dept. of Commerce
    - 3) Small Business Administration

- 4) Federal Emergency Management Agency
- 5) U.S. Dept. of Labor
- 6) U.S. Army Corps of Engineers
- 7) General Service Administration
- 8) U.S. Dept. of Interior

b. During a presidentially declared drought emergency (under Public Law 93-288), the Federal Emergency Management Agency may provide Emergency Response Teams (ERT's) in the State EOC to assist in the coordination of federal assistance as delineated in the Federal Response Plan (1992).

## 2. State

a. The following state organization may provide programs to local governments during drought emergencies. (Refer to Attachment 5, Disaster Assistance Programs, Part I, State Programs)

- 1) Department of Natural Resources
- 2) Ohio Water Development Authority
- 3) Department of Development
- 4) Treasurer, State of Ohio
- 5) Bureau of Employment Services
- 6) Ohio National Guard
- 7) Emergency Management Agency

b. Monitoring by the DAC will be maintained throughout Phase II - Phase IV with appropriate state assessment and response/recovery recommendations made to the Governor and the DEC.

c. Although some state assistance and resources are released for local use prior to a formal declaration of a drought emergency by the Governor, most state assistance is available only after a state declaration, as requested by local authorities, has been issued. (Refer to Basic Plan Tab 2, Ohio EOP, for procedures for requesting State Assistance.)

## 3. Local

- a. The following should also be considered as adjuncts to any plans, procedures, policies, and laws related to drought that local communities have developed:
  - 1) Enactment of ordinances to assure equitable water distribution.
  - 2) Establishment of a Water Management Task Force of 7-15 members made up of representatives of major water uses, government executives, emergency management health, fire and police representatives, water plant and district personnel, the media and related service representatives. The Water Management Task Force will determine and implement drought-related community activities.
  - 3) Prepare drought appendix to the local Emergency Operations Plan. (See Attachment 8 to this appendix, Ohio Suggested Drought Response Actions, as a guide for local drought appendix development. Also refer to Attachment 6, Suggested Response Water Use - Class.)
  - 4) Establish local drought emergency public information and educational programs.
  - 5) Maintain communications/coordination with state-level DAC and/or State EOC as appropriate through drought emergency.

B. Assignment of Responsibilities:

1. Emergency Management Agency (EMA)
  - a. Refer to annexes A, B, C, and D in the Ohio EOP for state activation, alert, communications, public information and coordination functions applicable for all emergencies.
  - b. Provide chairman for Drought Assessment Committee and Drought Executive Committee.
  - c. Coordinate the use of Ohio National Guard water trailers and EMA pipe and pumps for use by local communities.
  - d. Coordinate all drought-related press releases through the EMA Public Affairs Office before release.

- e. Maintain coordination with all Public Information Officers to ensure consistency in drought-related information.
- f. Assure family emergency information is provided to the public.
- g. Develop written updates of Ohio Drought Response Plan and submit to DAC members for review, recommendations and approval.

2. Department of Natural Resources: (DNR)

- a. Monitor water resources on a regular basis and report to EMA under Phase I, normal conditions.
- b. Provide information on available water resources within the State.
- c. Review and update regional water supply plans for each community.
- d. Assist communities, industries, and others to develop water conservation plans and programs.
- e. Monitor hydrologic and water supply conditions, gather and interpret water data regarding supply, use and trends.
- f. Maintain information on outlet discharge capacity of State-owned reservoirs and improve structural work as appropriate for State-owned reservoirs.
- g. Register all water withdrawals greater than 100,000 gallons per day, collect annual reports, analyze annual usage statewide and regionally.
- h. Assist in education of the public concerning general water management needs and answer requests for water resource information.
- i. Chair the following task forces; Wildlife, Fish and Wildlife, and Recreation and Tourism.
- j. Mediate conflicts of source utilization in cooperation with EPA.

- k. Provide technical information regarding private water supplies, as resources allow.
  - l. Coordinate use of Lake Erie water, in cooperation with EPA.
  - m. Provide information on the status of feeder canals throughout the State of Ohio.
3. Environmental Protection Agency (EPA)
- a. Monitor water availability and quality on a regular basis and report to EMA under Phase I, normal conditions.
  - b. Recommend voluntary cutbacks in water usage.
  - c. Initiate recommendations for water conservation based upon recognized priorities.
  - d. Mediate conflicts of source utilization in cooperation with DNR.
  - e. Post streams where water quality standards are not met.
  - f. Coordinate with the Department of Health on the release of drought-related health advisories.
  - g. Assist in encouraging cut backs of industrial use of water.
  - h. Chair Public Water Supply Task Force.
4. Department of Health (ODH)
- a. Provide increased surveillance of private water supplies and water haulers through the appropriate district offices.
  - b. Issue registrations for private water system contractors.
  - c. Analyze water well samples from local health departments upon request.
  - d. Analyze water samples from bathing beaches at Lake Erie.
  - e. Provide public instructions on means of disinfecting drinking water.

- f. Provide information on food safety.
  - g. Local health departments issue permits to drill water wells, and for water haulers and vehicles.
  - h. Provide technical information regarding private water supplies as resources allow.
5. Department of Agriculture (DA)
- a. Coordinate with the U.S. Department of Agriculture in collecting information regarding critical shortages of food products and livestock feed.
  - b. Develop State request for federal assistance and declaration of drought-related agricultural emergencies in coordination with the U.S. Department of Agriculture.
  - c. Plan for the emergency distribution of livestock feed.
  - d. Chair the Agriculture Task Force.
  - e. Assist in encouraging cutbacks of agricultural use of water.
6. Public Utilities Commission of Ohio (PUCO)
- a. Regulated investor-owned utilities advise PUCO of their drought status, establish contact person for weekly status report, and recommend conservation education.
  - b. Advise PUCO regulated investor-owned utilities to follow their tariffs with regard to voluntary and mandatory conservation measures.
  - c. Provide weekly reports on current status of PUCO regulated investor-owned utilities ability to provide service to their customers. The weekly reports will also contain any information that the PUCO Drought Coordinator would deem necessary to assist the Drought Task Force.
  - d. Monitor all events that may/will impact on this or other PUCO regulated investor-owned utilities.
7. Ohio State University Extension

- a. Coordinate with County Extension Agents for local drought preparedness/response/recovery activities.
  - b. Provide information/reports to the DAC on drought notifications and conditions in counties.
  - c. Assist County Extension Agents in distribution of drought-related Emergency Public Information (EPI).
8. Agriculture Stabilization and Conservation Service (ASCS)
- a. Implement federal drought assistance programs as requested.
  - b. Coordinate reports from Food and Agricultural Councils (FACs) with DAC
  - c. Provide assessments of drought damage.
  - d. Coordinate requests for drought-related Presidential Declaration of Agricultural Emergency.
  - e. Administer drought-related federal relief in coordination with DOA.
9. U.S. Army Corps of Engineers (USACOE)
- a. Coordinate the development of drought plans and procedures for lakes, dams, etc. within the State of Ohio that are under the jurisdiction of the Corps of Engineers with DNR and Ohio EMA.
  - b. Provide information/reports as needed to DAC on USACOE projects.
  - c. Coordinate USACOE drought-related activities with DAC and affected Ohio localities.
  - d. Construct wells and transport water to ranchers, farmers and political subdivisions for human and livestock consumption.
  - e. Sell supplies water from USACOE reservoirs as available during emergencies.

10. State of Ohio Climatologist (Ohio State University)
  - a. Provide research and reports related to statewide drought forecasts and durations.
11. National Weather Service
  - a. Provide research and reports on local weather patterns and forecasts to support drought-related planning and response activities.

## **V. DIRECTION AND CONTROL**

As stated under Section III., Concept of Operations.

## **VI. CONTINUITY OF GOVERNMENT**

Lines of succession for State agencies will be as outlined in agency operating procedures.

## **VII. PLAN DEVELOPMENT AND MAINTENANCE**

- A. The Emergency Management Agency is responsible for the maintenance of the Drought Appendix to the Ohio Emergency Operations Plan. It will be reviewed by all State agencies assigned tasks on an annual basis with updates provided as needed, or at least every three years.
- B. Each affected State organization shall initiate and develop a standard operating procedure addressing the implementation of drought related responsibilities as needed to implement the responsibilities listed in this appendix.
- C. Each State agency responding to the drought will prepare a final report on their activities and submit to the Drought Assessment Committee with a copy to the Emergency Management Agency.

## **VIII. AUTHORITIES AND REFERENCES**

- A. Authorities
  1. Federal
    - a. PL 93-288, The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, as amended.
    - b. PL 84-99, Emergency Authority, as amended (Corps of Engineers)

c. Safe Drinking Act of 1986, as amended.

2. State

a. ORC 5915 Emergency Management Agency

b. ORC 3701 Department of Health

c. ORC 901 Department of Agriculture

d. IRC 6109 Environmental Protection Agency  
(Safe Drinking Water)

e. Title 39 Department of Insurance

f. ORC 1501, Department of Natural Resources  
1520 and 1521

g. ORC 4901 Public Utilities Commission of Ohio

h. Governor's Executive Order dated June 16, 1978

B. References

1. Ohio Emergency Operations Plan, 1993

2. State of Ohio Hazard Analysis, 1984

3. Colorado Drought Response Plan, 1981

4. Tennessee Interim State Drought Management Plan, 1987

5. Kentucky Water Shortage Response Plan, 1988

6. A Model for Western State Drought Response and Planning, 1987

7. Digest of Federal Disaster Assistance Programs (FEMA 1979)

8. National Emergency Assistance Programs (National Governors Association  
1978)

9. Water Shortage - Federal Assistance Programs, Functions and Authorities  
(FEMA DRAFT 2 March 1981)

10. Natural Disaster Assistance Available from USDA - 1987 U.S. Department of Agriculture
11. Drought Disaster Operations Guidelines For State and Local Governments - April 27, 1993

## **IX. ATTACHMENTS**

Attachment 1 - Organizational Chart

Attachment 2 - Climatological Divisions of Ohio

Attachment 3 - Palmer Drought Indexes

Attachment 4 - Impact Task Force Descriptions

Attachment 5 - Disaster Assistance Programs

Attachment 6 - Suggested Response Water-Use Class

Attachment 7 - Drought Response Matrix

Attachment 8 - Ohio Suggested Drought Response Actions

Attachment 1 to the Ohio Drought Appendix of the Ohio Emergency Operations Plan

ORGANIZATIONAL CHART

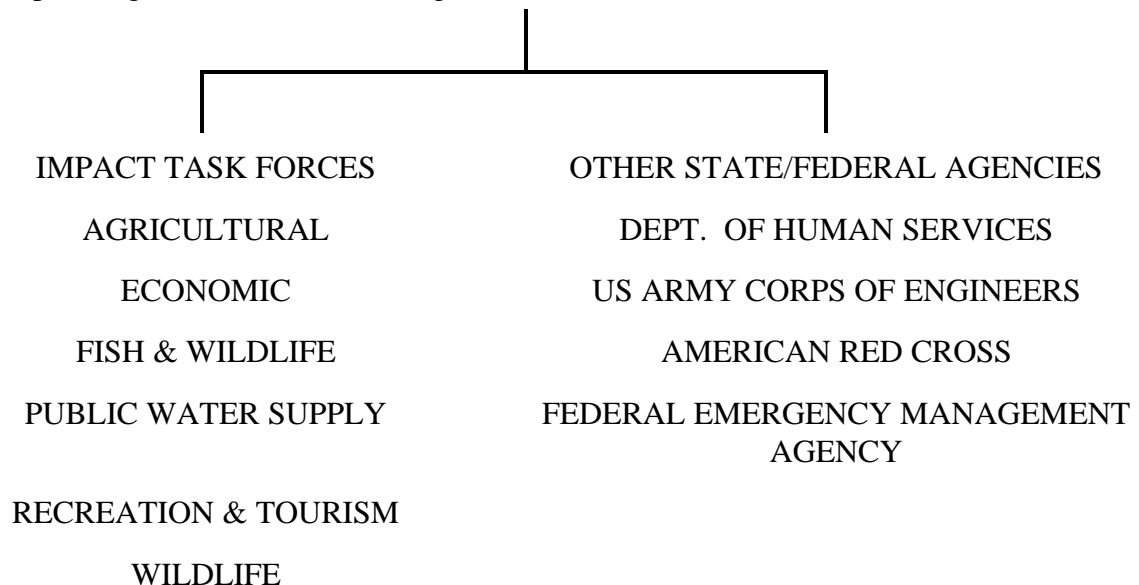
GOVERNOR

DROUGHT EXECUTIVE COMMITTEE

(Department of Natural Resources, Adjutant General, Environmental Protection Agency, Department of Health, Department of Agriculture, Department of Commerce, State Representative, State Senator, Attorney General, Bureau of Employment Services, Public Utilities Commission of Ohio)

DROUGHT ASSESSMENT COMMITTEE

(Ohio Emergency Management Agency, Department of Natural Resources, Environmental Protection Agency, Department of Health, Department of Agriculture, Public Utilities Commission of Ohio, OSU Extension, Agricultural Stabilization and Conservation Service, U.S. Army Corp of Engineers, State Climatologist, National Weather Service)



Attachment 2 available upon request through the National Drought Mitigation Center

**PALMER DROUGHT AND CROP MOISTURE INDICES**

**I. PALMER DROUGHT SEVERITY INDEX**

ABOVE +4	EXTREME MOIST SPELL
3.0 to 3.9	VERY MOIST SPELL
2.0 to 2.9	UNUSUAL MOIST SPELL
1.0 to 1.9	MOIST SPELL
0.5 to 0.9	INCIPIENT MOIST SPELL
0.4 to -0.4	NEAR NORMAL
-0.5 to -0.9	INCIPIENT DROUGHT
-1.0 to -1.9	MILD DROUGHT
-2.0 to -2.9	MODERATE DROUGHT
-3.0 to -3.9	SEVERE DROUGHT
BELOW -4.0	EXTREME DROUGHT

**II. CROP MOISTURE INDEX**

ABOVE +3	EXTREMELY WET
2.0 to 2.9	WET
1.0 to 1.9	ABNORMALLY MOIST
0 to 0.9	SLIGHTLY DRY
0 to -0.9	FAVORABLY MOIST
-1.0 to -1.9	ABNORMALLY DRY
-2.0 to -2.9	EXCESSIVELY DRY
-3.0 to -3.9	SEVERELY DRY
BELOW -4.0	EXTREMELY DRY

### **STATE DROUGHT IMPACT TASK FORCES**

Each State agency named to an Impact Task Force will name an agency drought coordinator and by their own initiative take appropriate measures in response to drought-related problems. The timely implementation of effective measures by individual agencies should not be hindered by a strict review and approval process. The Impact Task Forces will coordinate and facilitate individual agency actions and oversee cooperative efforts. The Task Force representatives must be able to speak for their agency and have authority to make reasonable commitments toward effective cooperation and coordination.

The duties and activities of each Task Force are to include, but are not limited to:

1. Develop, revise and update, as necessary, Task Force guidelines and procedures.
2. Establish procedures for coordination with other task forces, State and federal agencies, local government, and public and/or private groups.
3. Identify key contacts in State, federal, and private support groups.
4. Review existing reporting and analyzing capabilities and identify information gaps.
5. Recommend response levels and activities and analyze barriers to response or special needs.
6. Report to the Drought Assessment Committee on a monthly basis during the conservation phase and on a weekly basis in a drought emergency.
7. Maintain supporting data and records of activities.
8. When deactivated prepare a final report on activities and submit to the Ohio Emergency Management Agency.

## #1 AGRICULTURE

### PURPOSE

To assist farmers during drought conditions, assess and project likely impacts, identify alternative responses and sources of assistance and report to the Drought Assessment Committee.

LEAD STATE AGENCY: Department of Agriculture

The Agriculture Task Force is chaired by the Department of Agriculture and will consist of the following state and federal agencies, and shall meet at the call of the chair.

Ohio State University Extension  
State and County Emergency Boards  
USDA Agriculture Stabilization and Conservation Service  
Division of Soil and Water Conservation, DNR

### ACTIVITIES:

1. Review available data sources, existing drought reports, and analyze potential threats.
2. Provide timely data to farmers and, state and federal agencies.
3. Assist in emergency livestock feeding and water hauling operations.
4. Survey and monitor animal health and care.
5. Operate and maintain hay-locator service.
6. Coordinate economic outlook reporting.
7. Make requests and recommendations with respect to emergency funding.
8. Identify any gaps in these various programs and recommend action on unmet needs.
9. Prepare a final report upon deactivation.
- 10.

## #2 WILDFIRE

### PURPOSE

To assess and address drought-related impacts due to threats of wildfire.

LEAD STATE AGENCY: Department of Natural Resources, Division of Forestry

The Task Force is chaired by the Division of Forestry and will consist of the following State and federal agencies:

Division of Air Pollution Control, EPA  
Division of Wildlife, DNR  
Division of Parks and Recreation, DNR  
Division of the State Fire Marshal  
U.S. Forest Service  
Division of Natural Areas and Preserves, DNR

### ACTIVITIES

1. Identify key personnel and contacts.
2. Assess and project the extent and potential impacts of wildfire threats.
3. Review existing wildfire protection capabilities and inventory ponds, lakes and dry hydrants which may be available in firefighting efforts.
4. Project the need for additional resources.
5. Provide technical planning and preparedness assistance.
6. Recommend a burning ban, in specified areas or statewide, based on current and expected wildfire activity and available indicators.
7. Prepare a final report upon deactivation.

### **#3 FISH AND WILDLIFE**

#### **PURPOSE:**

Collect and evaluate data on fish and wildlife related impacts, project the potential severity of such impacts, and identify alternative mitigation measures and sources of assistance.

**LEAD STATE AGENCY:** Department of Natural Resources, Division of Wildlife

The Task Force is chaired by the Division of Wildlife and will consist of the following State and federal agencies:

Division of Parks and Recreation, DNR  
U.S. Fish and Wildlife Service  
U.S. Forest Service  
U.S. Army Corps of Engineers

#### **ACTIVITIES:**

1. Assess and project impacts on the State's fish and wildlife resources, including game and non-game species.
2. Estimate potential short-term wildlife losses and make long-term projections with respect to State-controlled land and waters.
3. Recommend mitigation measures such as reservoir conservation pools, construction of watering ponds, etc.
4. Estimate funding and manpower requirements by project and species.
5. Review State-held water rights for fish and wildlife, and the potential impact of reservoir releases on domestic and other needs.
6. Prepare final report when deactivated.

## **#4 RECREATION AND TOURISM**

### **PURPOSE**

To assess the impact of drought on recreation and tourism, and coordinate public and private efforts to avoid or mitigate losses.

**LEAD STATE AGENCY:** Division of Parks and Recreation, DNR

The Task Force will consist of the following State and federal agencies:

Department of Health  
Division of Wildlife, DNR  
Division of Forestry, DNR  
State and Local Governments Commission  
County Commissioners Association  
U.S. Forest Service  
National Park Service  
U.S. Army Corps of Engineers  
Division of Water craft, DNR

### **ACTIVITIES:**

1. Provide timely information on drought conditions and recreational impacts to appropriate State agencies and the public.
2. Identify major commercial and industry specific problems and recommend solutions.
3. Develop and disseminate information to the media and public concerning restrictions or closing of State and/or federal parks and recreation parks.
4. Prepare a final report when deactivated.

## **#5 PUBLIC AND PRIVATE WATER SUPPLY**

### **PURPOSE**

To ensure adequate supplies of potable water for essential domestic uses, as well as municipal and industrial needs.

**LEAD STATE AGENCY:** Division of Public Drinking Water, EPA

The Task Force will be chaired by the Division of Public Drinking Water and will consist of the following State and federal agencies:

Division of Water, DNR  
Department of Health  
Emergency Management Agency  
State and Local Government Commission  
Ohio Water Development of Ohio  
Public Utilities Commission of Ohio  
U.S. Army Corps of Engineers  
Ohio Municipal League  
County Commissioners Association

### **ACTIVITIES**

1. Provide water conservation program information.
2. Provide or coordinate water hauling services by prioritized needs.
3. Develop a list of problems areas.
4. Facilitate approval of rate and operation changes.
5. Assess information concerning streamflows, reservoirs levels, ground-water levels, precipitation, and so on, to recommend voluntary cutbacks, of water usage by municipalities and industries.
6. Assess water quality.
7. Coordinate drought response activities with private water supplies as needed and encourage private water supplier conservation and cooperation for water usage during droughts.
8. The U.S. Army Corps of Engineers will make field investigations on eligibility for assistance when requested by the Governor to include: providing drinking water,

transporting emergency water for human and livestock consumption and constructing wells based upon cost reimbursement to the government.

9. Prepare a final report upon deactivation.

## #6 ECONOMIC

### PURPOSE

To establish procedures and an organization to assess drought-related economic impacts and recommend and undertake specific responses.

LEAD STATE AGENCY: Office of Budget and Management

The Task Force will be co-chaired by the Office of Budget and Management and the Department of Taxation and may consist of the following State and federal agencies:

State of Ohio Treasurer  
Department of Commerce  
Department of Agriculture  
Department of Human Services  
Department of Development  
Bureau of Employment Services  
State and Local Government Commission  
County Commissioners Association  
Ohio Municipal League  
Public Utilities Commission of Ohio

### ACTIVITIES:

1. Identify actual and potential economic impacts of drought by area of the State.
2. Develop and employ an economic simulation model to project drought impacts.
3. Identify actual or potential revenue loss by State and local governments.
4. Recommend mitigation measures.
5. Identify State and federal sources of financial assistance.
6. Monitor the costs incurred by State agencies responding to the drought.
7. Identify priority areas for additional State funding.
8. Prepare a final report upon deactivation.
9. Respond to needs of migrant workers in affected areas of the State of Ohio.
10. Prepare statistical information for Presidential Declaration of Disaster request.

Attachment 5 to the Ohio Drought Appendix of the Ohio Emergency Operation Plan.

## **DISASTER ASSISTANCE PROGRAMS**

### INTRODUCTION

This is a listing of existing State and Federal assistance programs, applicable to drought. For specific program details contact with the parent State or Federal agency is recommended.

### PART I - STATE PROGRAMS

#### AGENCY

DNR (DIVISION OF FORESTRY)	Emergency Fire Suppression Resources and Assistance  Technical Assistance For Forest Related Drought Problems
DNR (DIVISION OF WATER)	Water Supply Reservoir Projects (funded by the State's Capital Improvements budget prepared on the biennium) (Legislative approval required)  Ground water investigation/hearings to assist in conflict resolutions and designate stress areas.
OHIO WATER DEVELOPMENT AUTHORITY	Low-Interest, Revenue - Financing Loans to Assist Communities in the Development of Public Water Supply Systems
DEPARTMENT OF DEVELOPMENT	Community Development Block Grants  Community Assistance Programs Block Grants  Water and Sewer Rotary  Office of Appalachia Community Loans
TREASURER, STATE OF OHIO	Withdraw Linked Deposit Program for Farmers and Businesses
BUREAU OF EMPLOYMENT SERVICES	Emergency Assistance for Migrant Seasonal Farmworkers

NATIONAL GUARD

Trailers

EMERGENCY MANAGEMENT AGENCY

Pumps and Pipe

PART II - FEDERAL PROGRAMS

AGENCY

PROGRAM TITLE

U.S. DEPARTMENT OF AGRICULTURE

Agriculture Conservation Program  
Emergency Conservation Program  
Emergency Payment Program  
HUD Preservation Program  
Indian Acute Distress Donation Program  
Federal Crop Insurance  
Cooperative Forestry Assistance  
Soil and Water Conservation Program  
Watershed Protection and Flood  
Prevention Program  
Plant, Animal, Disease, and Pest Control  
Program  
Water and Waste Disposal Systems for Rural  
Communities  
Community Facilities Loan  
Emergency Loan Program  
Emergency Food Stamps  
Migratory Wildfowl Feeding  
Resident Wildlife Feeding  
Technical Advice to Farmers and Ranchers  
Water Bank Program  
Resource Conservation and Development

U.S. DEPARTMENT OF COMMERCE

National Weather Service, Weather and River  
Forecasts and Warning Program  
Grants/Loan for Public Works and  
Development Facilities  
Impact Projects Public Works Program  
Special Economic Development and  
Adjustment Assistance Program

SMALL BUSINESS ADMINISTRATION

Disaster Loans  
Economic Injury Disaster Loans  
Economic Dislocation Loans

FEDERAL EMERGENCY MANAGEMENT  
AGENCY

Fire Suppression Assistance to State  
Governments  
Water Supply Equipment  
\*Emergency Assistance  
\*Major Disaster Assistance  
(Based on a Presidential Declaration  
under PL 93-288)

U.S. DEPARTMENT LABOR

Department of Labor  
Unemployment Insurance Assistance Program  
Job Training Partnership Act (JTPA)  
Employment Service Program

U.S. ARMY CORPS OF ENGINEERS

Emergency Drought Assistance, PL 84-99

GENERAL SERVICES  
ADMINISTRATION

Donation of Federal Surplus Personal  
Property

U.S. DEPARTMENT OF INTERIOR

Irrigation Distribution System Loan Program  
Small Reclamation Projects Program Drought  
Related Technical Assistance Program  
National Water Resources Research Program

Attachment 6 to the Ohio Drought Response Plan.

## **SUGGESTED RESPONSE WATER-USE CLASS**

### Class 1: Essential Water Uses

#### Domestic Use:

- Water in amounts which are reasonably needed to sustain human life and the lives of domestic pets, and to maintain reasonable standards of hygiene, cleanliness, and sanitation.

#### Health Care Facilities:

- patient care and rehabilitation.

#### Public Use:

- firefighting,
- health and public protection purposes as specifically approved by health officials and the municipal governing body to include water and waste-water treatment.
- water necessary for the operation of electric power generation.
- water essential for the operation to key military facilities.

### Class 2: Socially or Economically Important Uses of Water

#### Outdoor Commercial and Non-Commercial Watering (public or private):

- agricultural irrigation for the production of food and fiber or the maintenance of livestock,
- watering by commercial nurseries at a minimum level necessary to maintain stock, to the extent that sources of water other than fresh water are not available or feasible to use,
- water use by arboretums and public gardens of national, state, or regional significance where necessary to preserve specimens, to the extent that sources of water other than fresh water are not available or feasible to use,
- water use by Sod Producers and the Turf Industry,

- use of fresh water at a minimum rate necessary to implement revegetation following earth moving, where such revegetation is required pursuant to an erosion and sedimentation control plan adopted pursuant to law or regulation, to the extent that sources of water other than fresh water are not available or feasible to use,
- water of golf course greens.

#### Filling and Operation of Swimming Pools:

- residential pools which serve more than 25 dwelling units.
- pools used by health care facilities for patient care and rehabilitation,
- municipal pools.

#### Washing of Motor Vehicles:

- commercial car and truck washes, unrestricted hours of operations,

#### Commercial Laundromats:

- unrestricted hours of operation.

#### Restaurants, Clubs and Eating Places:

- unrestricted hours of operation.

#### Air Conditioning:

- refilling for startup at the beginning of the cooling season,
- make-up of water during the cooling season,
- refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.

#### Schools, Churches, Motels/Hotels and Similar Commercial Establishments:

- unrestricted operation.

#### Class 3: Non-Essential Uses of Water

#### Ornamental Purposes:

- fountains, reflecting pools and artificial waterfalls.

Outdoor Commercial and Non-Commercial Watering (public or private):

- gardens, lawns, parks, golf courses (except greens), playing fields and other recreational areas.

Exceptions:

- agricultural irrigation for the production of food and fiber or the maintenance of livestock,
- watering by commercial nurseries at a minimum level necessary to maintain stock, to the extent that sources of water other than fresh water are not available or feasible to use,
- water use by arboretums and public gardens of national, state, or regional significance where necessary to preserve specimens, to the extent that sources of water other than fresh water are not available or feasible to use,
- use of fresh water at a minimum rate necessary to implement revegetation following earth moving, where such revegetation is required pursuant to an erosion and sedimentation control plan adopted pursuant to law or regulation, to the extent that sources of water other than fresh water are not available or feasible to use.

Filling and Operational of Swimming Pools:

exceptions:

- residential pools which serve more than 25 dwelling units,
- pools used by health care facilities for patient care and rehabilitation,
- municipal pools,

Washing of Motor Vehicles:

- automobiles, trucks, boats and trailers, if recycling water.

exceptions:

- commercial car and truck washes, if recycling water.

Serving Water in Restaurants, Clubs, or Eating Places:

exceptions:

- specific request by a customer.

Fire Hydrants:

- any purpose, including use of sprinkler caps and testing fire apparatus and for fire department drills.

exceptions:

- firefighting,
- health protection purposes, if specifically approved by the health officials of the municipality,
- certain testing and drills by the fire department, if it is in the interest of public safety, and is approved by the municipal governing body.

Flushing of Sewers and Hydrants:

exceptions:

- as needed to ensure public health and safety, and approved by health officials and the municipal governing body.

Air Conditioning:

- refilling cooling towers after draining.

exceptions:

- refilling for startup at the beginning of the cooling season,
- make-up of water during the cooling season,
- refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.

Water Use Class	Alert	Conservation	<u>Phases</u> Emergency
1. Essential	Voluntary	Voluntary	Voluntary
2. Socially or Economically Important	Voluntary	Voluntary	Mandatory
3. Non-Essential	Voluntary	Mandatory	Mandatory

**ATTACHMENT 7 - DROUGHT RESPONSE MATRIX FOR STATE AGENCIES**

<b>STATE-LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
<p>1. Proposed Actions by the Governor in the Event of Drought in the State of Ohio</p>	<p>1. Work with EPA, DNR, and General Assembly to pass water allocation and other appropriate legislation.</p>	<p>1. Through Executive Order authorize the formation of a Drought Assessment Committee consisting of: EPA, DNR, EMA, PUCO Agriculture, NWS, the Ohio State Climatologist, State Extension Office</p> <p>2. The Drought Assessment Committee will monitor and review information quarterly relating to water supplies in Ohio and make recommendations to the Governor.</p> <p>3. Issue Drought Alert for areas of Ohio affected.</p> <p>4. Issue burning bans as needed by Executive Order.</p> <p>5. Initiate a public information and education program.</p>	<p>1. Activate Impact Task Groups as appropriate.</p> <p>2. Respond to local government appeals for assistance acquiring pipe and pumps from EMA and water tankers through the National Guard.</p> <p>3. Continue public awareness programs and strongly encourage local governments to issue water restrictions.</p> <p>4. Order state agencies to comply with local water conservation restrictions.</p> <p>5. Issue Executive Orders regarding waived permits, fees, and other restrictions for carriers bringing hay and needed supplies for agriculture relief.</p> <p>6. Request the USDA to declare an Agricultural Disaster in Ohio, if warranted.</p>	<p>1. Declare a Drought Emergency.</p> <p>2. Activate DEC.</p> <p>3. Encourage restrictions on non-essential uses of water.</p> <p>4. Progressive restrictions will be implemented as conditions require.</p> <p>5. Continue Conservation Phase activities.</p>

**ATTACHMENT 7, DROUGHT RESPONSE MATRIX FOR STATE AGENCIES**

<b>STATE LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
<p>1. Proposed Actions by the Governor - continued.</p> <p>2. Environmental Protection Agency</p>	<p>1. Develop criteria for public water supply emergency plans.</p> <p>2. Assist owners/operators of public water systems in developing water supply emergency plans.</p> <p>3. Review water supply emergency plans and maintain copy for file.</p> <p>4. Determine and record “normal” levels for public water systems.</p>	<p>6. Ensure agencies initiate programs, plans and coordination with other state and federal agencies.</p> <p>7. Establish liaison with local governments. Request voluntary water use reduction.</p> <p>1. Coordinate with EMA and other responders for release of public information.</p> <p>2. Increase monitoring of alerted areas.</p> <p>3. Train/review Level 2-Level 4 requirements with regional offices.</p> <p>4. Water suppliers report status to regional EPA water supply officials.</p>	<p>1. Post streams where water quality standards are not met.</p> <p>2. Issue conservation guidelines.</p> <p>3. Coordinate with ODH on release of health advisories.</p> <p>4. Review and recommend approval of local drought emergencies requests by local officials in coordination with DNR, Health, and EMA</p>	<p>8. At any time, should conditions indicate that the drought may be ending, the phases may deteriorate to the lower phases.</p> <p>9. Seek emergency legislation if required.</p> <p>10. 1-800 line established.</p> <p>1. Coordinate with Governors representatives for Declaration of Emergency.</p> <p>2. Mediate in conflicts of source utilization in cooperation with DNR.</p> <p>3. Support Governor in enforcing provisions as required.</p> <p>4. Initiate rationing procedures based upon recognized priorities (maintenance of human life primarily).</p>

**ATTACHMENT 7 - DROUGHT RESPONSE MATRIX FOR STATE AGENCIES**

<b>STATE LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
<p>2. Environmental Protection Agency - continued</p>	<p>5. Determine backup supplies and storage system for public water suppliers.</p> <p>6. Provide monthly reports to EMA on public water quality and supplies, in anticipation of drought conditions.</p>	<p>5. Advise water suppliers in affected areas to review and activate as needed local water supply emergency plans and contingency plans. (ORC 6901.05 and Administration Code 3745-85-04.)</p> <p>6. Provide representative from the Division of Drinking Water as member of Drought Assessment Committee.</p>	<p>5. Monitor all public water supply facilities; augment staff.</p> <p>6. Activate prioritization of publicly supplied water usage.</p> <p>7. As directed by the Governor assist localities in enforcing cutbacks of publicly supplied industrial/agricultural use of water.</p> <p>8. Issue advisories for local mandatory restrictions of publicly supplied water usage (ORC 6901-06).</p> <p>9. Director becomes member the Drought Executive Committee, when activated.</p> <p>10. Chair Public Water Supply Impact Task Force, when activated.</p>	<p>5. Coordinate with DNR for use of Lake Erie water.</p> <p>6. Provide liaison to activated EOC.</p>

<b>STATE LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
<p>3. Ohio Department of Natural Resources</p>	<p>1. Review and update water supply plans for each community.</p> <p>2. Continue to gather and interpret water data regarding supply, use and trends.</p> <p>3. Analyze adequacy of existing water supply systems and assist communities, agriculture, industries, and individuals to develop water-supply systems as needed to withstand appropriate drought conditions.</p> <p>4. Educate the public regarding general water management needs and answer requests for water information.</p> <p>5. Assist communities, industries and others to develop water conservation plans and programs; model conservation plans.</p>	<p>1. Provide daily or weekly reports on water levels, hydrologic information, and developing shortages. Review status and availability of water storage in state or federal reservoirs.</p> <p>2. Inform public regarding Ohio water rights and obligations for use of streams and groundwater.</p> <p>3. Coordinate with local water supply officials, review availability of water conservation plans and implementation of programs.</p> <p>4. Review, correlate, and map data from weather information services and water level monitoring systems.</p> <p>5. Analyze precipitation deficiencies with communities known to have inadequate storage capacity.</p>	<p>1. Increase monitoring hydrologic and water supply conditions to weekly or daily.</p> <p>2. Make calculation of draw-down under various release rates for state-owned reservoirs.</p> <p>3. Make field checks to verify need and availability of water from state-owned reservoirs, including canals and associated lakes.</p> <p>4. Coordinate requests for water from state-owned reservoirs with appropriate agencies.</p> <p>5. Identify large withdrawals and consumptive uses and encourage water conservation.</p>	<p>1. Evaluate requests for downstream discharges from state-owned reservoirs for community water systems on emergency status and consider approval of water hauling from state-owned reservoirs for authorized purposes. Monitor uses and/or reservoirs.</p> <p>2. Maintain close liaison with U.S. Army Corps of Engineers and appropriate conservancy water releases from respective reservoirs as appropriate.</p> <p>3. Confirm that water conservation measures have been implemented by communities or others requesting releases.</p> <p>4. Make recommendations to U.S. Department of Agriculture for harvesting hay or pasture on agricultural set-aside.</p> <p>5. Monitor hydrologic conditions as needed and provide updates.</p>

STATE LEVEL RESPONDERS	PHASE I NORMAL	PHASE II ALERT	PHASE III CONSERVATION	PHASE IV EMERGENCY
3. DNR- Continued	<p>6. Monitor hydrologic and water supply conditions; evaluate conditions monthly and disseminate information.</p> <p>7. Identify, evaluate, research and document water sources.</p> <p>8. Evaluate, improve and automate data collection network, including streamflow, ground water precipitation, reservoirs, and consumption. Report this information to EMA on a regular basis.</p> <p>9. Maintain information on outlet discharge capacity of state-owned reservoirs and improve structural works as appropriate for state-owned reservoirs.</p> <p>10. Register all water withdrawals greater than 100,000 gpd. collect source reports, analyze annual usage state-wide and regionally.</p>	<p>6. Inform EOC and Governor's staff when conditions warrant conservation and emergency status.</p> <p>7. Increase monitoring of hydrological and water supply conditions to twice monthly or weekly.</p> <p>8. Compare hydrologic information with past drought conditions and determine stressed areas.</p> <p>9. Prepare and disseminate a drought report weekly for decisionmakers and press.</p> <p>10. Prepare for a substantial increase in the number of requests for general and technical water resource and other hydrologic information.</p>	<p>6. Restrict managed wetland pumping at selected locations as needed.</p> <p>7. Various Divisions will Chair the Wildlife, Recreation &amp; Tourism, and Fish &amp; Wildlife Impact Task Forces when activated.</p> <p>8. Director sits on Drought Executive Committee when activated.</p>	<p>6. Make recommendations for rationing withdrawals from state-owned reservoirs.</p> <p>7. Restrict recreational uses as required for health and safety.</p> <p>8. Further restrictions on managed wetland pumping as needed.</p> <p>9. Provide EOC representatives.</p> <p>10. Coordinate use of Lake Erie in cooperation with EPA.</p>

<b>STATE LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
		<ul style="list-style-type: none"> <li data-bbox="825 1021 1213 1214">11. Assign personnel to correlate storage data and outlet discharge capacity; determine current operational status of outlets for state-owned reservoirs.</li> <li data-bbox="825 1214 1213 1344">12. Coordinate activities within DNR and other local, state and federal agencies as appropriate.</li> <li data-bbox="825 1344 1213 1474">13. Identify large withdrawals and consumptive users in stressed areas.</li> <li data-bbox="825 1474 1213 1604">14. Ban open burning throughout Ohio including state forests and parks as required for safety.</li> <li data-bbox="825 1604 1213 1624">15. Provide representative from Div. Of Water to sit on Drought Assessment Committee.</li> </ul>		

STATE-LEVEL RESPONDERS	PHASE I NORMAL	PHASE II ALERT	PHASE III CONSERVATION	PHASE IV EMERGENCY
<p>4. Department of Agriculture</p>	<p>1. Prepare plans for the emergency distribution of livestock feed.</p>	<p>1. Coordinate with the U.S. Dept. Of Agriculture and State and County Emergency Boards to assess the agricultural situation in Ohio.</p> <p>2. Provide weekly agricultural reports on crops and animals affected by the drought.</p> <p>3. Provide a representative to the Drought Assessment Committee activated.</p>	<p>1. Develop state request for federal assistance from the U.S. Dept. Of Agriculture.</p> <p>2. Implement state plans for the emergency distribution of livestock feed.</p> <p>3. Assist in operation of a hay locator service.</p> <p>4. Survey and monitor animal health and care.</p> <p>5. Provide weekly agricultural reports on crops animals.</p> <p>6. Investigate and enforce regulations regarding unfair pricing.</p> <p>7. Director sits on Drought Committee, when activated.</p> <p>8. Chair the Agricultural Impact Task Force when activated.</p>	<p>1. Provide a representative to the EOC.</p> <p>2. Continue activities from the Conservation Phase.</p>

STATE-LEVEL RESPONDERS	PHASE I NORMAL	PHASE II ALERT	PHASE III CONSERVATION	PHASE IV EMERGENCY
<p>5. Public Utilities Commission of Ohio</p>	<ol style="list-style-type: none"> <li>1. Review and update PUCO assignments in State Drought Plans.</li> <li>2. Coordinate advice received from investor owned/commission regulated utilities.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assure investor-owned commission regulated utilities have notified customers of voluntary conservation measures.</li> <li>2. Receive regular status reports from investor-owned utilities.</li> <li>3. Coordinate with EMA and other state-level responders for release of public information.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assure investor-owned commission regulated utilities have notified customers of conservation measures.</li> <li>2. Provide daily reports on water levels and developing emergencies in locations serviced by investor-owned water and electric utilities.</li> <li>3. Advise investor-owned water utilities to curtail discretionary use by customers; limit output.</li> <li>4. Follow EPA recommended prioritization of water usage to the extent of consistency with PUCO rules.</li> <li>5. Director sits on Drought Executive Committee, when activated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Coordinate with Governor's representative for Declaration of Emergency.</li> <li>2. Enforce emergency provisions as required by Commissioner and Governor.</li> <li>3. Activate drought emergency plans as required.</li> <li>4. Assign representative to EOC.</li> </ol>

<b>STATE-LEVEL RESPONDERS</b>	<b>PHASE I NORMAL</b>	<b>PHASE II ALERT</b>	<b>PHASE III CONSERVATION</b>	<b>PHASE IV EMERGENCY</b>
6. State & Local Governments	1. Assist local communities in development of water shortage and drought response plans.	1. Notified of Drought Alert Declaration  2. Contact local governments concerning the drought and keep them informed of situations.	1. Maintain liaison with local governments concerning seriousness of situation.  2. Coordinate with state and federal agencies by local as necessary.  3. Call for voluntary water conservation by local communities.	1. Continue conservation phase activities.  2. Call for mandatory restrictions of water usage.
7. Emergency Management Agency	1. Coordinate with DNR, EPA, and other agencies to assess the possibility of drought conditions developed in the state.  2. Review and maintain the Drought Response Plan.  3. Coordinate with other state agencies in creating or amending legislation related to drought.	1. The Deputy Director chairs the Drought Assessment Committee (DAC).  2. Provide regular reports to the State Drought Coordinator through the DAC.  3. Maintain a regular information flow with key federal, state and local agencies concerning drought conditions.	1. Provide raw water pipe and pumps to local jurisdictions.  2. Coordinate the use of water trailers by local jurisdictions with the ONG.  3. Continue activities from Phase II.  4. The Adjutant General chairs the Drought Executive Committee when activated.	1. Control and coordinate activation of the State EOC.  2. Continue activities from Phase II and III.

Attachment 8 to Ohio Drought Response Plan (Appendix 1 to Ohio EOP).

## **OHIO SUGGESTED DROUGHT RESPONSE ACTIONS**

Although there is no universally accepted definition of water conservation, the U.S. Water Resource Council defines water conservation as “activities designed to (1) reduce the demand for water, (2) improve efficiency in use and reduce losses and waste of water, or (3) improve land management practices to conserve water.

These suggestions provide information useful to utilities preparing for drought emergencies, as well as those implementing ongoing conservation programs to conserve resources and minimizing costs and investments. These suggestions are general in nature to allow for site specifics of each individual system. Attachments to this plan include “Suggested Actions for Effective Response at Each Drought Stage” and Suggested Measures for Conservation.

Any drought plan must be tailored to meet the needs and constraints of the specific community and water sources involved. The following suggestions have been compiled from existing drought plans for communities as well as regional, national and water industry guidance materials.

All water systems in Ohio should follow these suggestions. However, it is recognized that, for those systems regulated by the Public Utilities Commission of Ohio (PUCO), where rules, regulations, or guidelines established by the PUCO differ or conflict with this plan, the rules, regulations, or guidelines approved by the PUCO govern.

In order for a drought plan to be accepted, it needs to be as socio-economically fair as possible. Careful consideration must be given throughout development of your plan to ensure equitability across the entire user base. A local Water Management Task Force should be established to assist in making these decisions.

## **CRITERIA FOR INITIATING DROUGHT RESPONSE PHASES**

### **GENERAL**

The “Ohio Emergency Operations Plan/Drought Appendix” identifies four phases for drought response:

- **Normal Phase:** Water supplies are adequate and climatological conditions are normal.
- **Alert Phase:** Climatological data indicates above normal temperatures and below normal precipitation for an extended periods. Streamflow, reservoir levels, and/or groundwater levels are below normal over an extended period of time. Water conservation measures are implemented.

- **Conservation Phase:** Climatological conditions worsen and water levels continue to decline. Water conservation measures are increased.
- **Emergency Phase:** Climatological conditions continue to worsen and water levels continue to diminish. Conservation measures have to be more stringent to ensure adequate water supply for health and sanitary purposes.

In the absence of monitoring information on your specific water source, the Palmer Drought Index for your region could be used to initiate drought response.

Palmer Drought Index levels are included in the “Ohio Drought Response Plan” as one of several indicators evaluated when initiating and rescinding appropriate drought response phases on a statewide basis. Monitoring local conditions will provide much more accurate information on which to base such decisions. The following data and response criteria are suggested for various water sources. Once an adequate data base is obtained, reliable statistical criteria can be developed for your particular water sources.

## **GROUND WATER SYSTEMS**

### **Normal Phase**

Static level, drawdown and discharge should be measured and recorded for each well monthly.

### **When to Declare an Alert for Wells**

A water shortage Alert should be placed in effect when conditions indicate the potential for serious water supply shortages. A potential shortage in a well would be suspected when:

(1) drought conditions in the area have reached severe levels regardless of well-field conditions; (2) when wells in another system which draws from the same aquifer are showing signs of reduced supply or declining water levels (water systems may check with the Ohio Department of Natural Resources, Division of Water, to determine if any observation wells are located near the wellfield or in the same aquifer to help evaluate water-level conditions; (3) the pumping and non-pumping groundwater levels or the groundwater levels in an observation well in or near the well field are declining faster than historically normal for the season, or when declines occur during a time when recharge (rise in water levels) would normally be observed; (4) when abnormally low amounts of recharge (rise in water levels) occur in monitoring wells or the pumping wells during the normal recharge period (November through May).

When these conditions are observed, a Conservation Phase may be necessary, and a hydrogeologist should be consulted to evaluate wellfield and aquifer conditions.

### **When to Declare a Conservation Phase for Wells**

The Conservation Phase should be implemented as soon as visible or measurable signs of abnormal decline in the pumping well not attributed to well maintenance needs are observed, when water levels in observation or monitoring wells condition to decline below normal levels. An additional sign of a shortage may be when a projection of pumping levels (at the current or expected rate of production) in the production wells(s) show a decline below critical levels before the beginning of the normal recharge season.

Abnormally large or rapid declines in the pumping water level or yield may constitute an Emergency and a hydrogeologist should be consulted to evaluate wellfield and aquifer conditions.

### **When to Declare an Emergency for Wells**

An Emergency should be declared when any one of the following occur: (1) when the yield of the wellfield declines to 75 percent of normal; (2) when the projected levels will reach critical levels within 45 days or less.

### **UNREGULATED STREAMS** (Free-flowing, no flow control capabilities)

#### **Normal Phase**

Streamflow should be measured daily. Check with the Ohio Department of Natural Resources (ODNR) or the United States Geological Survey (USGS) to determine if there is a stream discharge gauge nearby. If there is not, one should be established and operated at the withdrawal site by the water system or in cooperation with the USGS cooperative stream discharge gauging program.

#### **When to Declare an Alert for Unregulated Streams**

A water shortage Alert should be placed in effect when conditions indicate the potential for serious water supply shortages.

A potential shortage would be suspected when flow is abnormally low in your area. An Alert would probably be appropriate for free-flowing streams when demand is 20 percent of streamflow. Measure streamflow daily.

Once in effect, an Alert should not be removed until demand is less than 10 percent of streamflow for a four week period.

#### **When to Declare a Conservation Phase for Unregulated Streams**

The water shortage Conservation Phase should be placed in effect as soon as there are visible or measurable signs that supplies are significantly lower than seasonal norm and are diminishing.

Signs of abnormally low supply from a free-flowing stream can be determined by comparisons to historical records with adjustments for changes in use. If these are unavailable, the Conservation Phase should be declared when demand is 40 percent of streamflow. Measurements should be made daily.

Once in effect, the Conservation Phase should not be reduced to an Alert until demand is less than 20 percent of steamflow for four weeks.

### **When to Declare an Emergency for Unregulated Streams**

A water shortage Emergency exists when a water utility is experiencing a water shortage.

If demand is 60 percent of streamflow, a water shortage Emergency should be declared. Measurer flow daily.

Once in effect, an Emergency phase should not be reduced to the Conservation Phase until demand is less than 40 percent of streamflow for a four-week period.

## **REGULATED STREAMS** (Streamflow controlled by i.e., Army Corp., or ODNR)

### **Normal Phase**

Streamflow should be measured daily. Check with the Ohio Department of Natural Resources (ODNR) or the United States Geological Survey (USGS) to determine if there is stream discharge gauge nearby. If there is not, one should be established and operated at the withdrawal site by the water system or in cooperation with the USGS cooperative stream discharge gauging program. Daily data should be obtained from the upstream reservoir regulating the flow on reservoir level, storage and projected releases.

### **When to Declare an Alert for Regulated Streams**

A water shortage Alert should be placed in effect when conditions indicate the potential for serious water supply shortages.

An Alert would probably be appropriate when levels are low in the reservoir behind the regulating dam, or when demand is 20 percent of streamflow. Measurer upstream reservoir level storage daily. Remove Alert when demand is less than 20 percent of streamflow for four weeks.

### **When to Declare a Conservation Phase for Regulated Streams**

The Water shortage Conservation Phase should be placed in effect as soon as there are visible or measurable signs that supplies are significantly lower than the seasonal norm and are diminishing.

Regulated streams should declare the Conservation Phase when the demand is 40 percent of streamflow.

Measure upstream reservoir level/shortage daily. Measure streamflow daily. Remove the Conservation Phase when demand is less than 40 percent of the streamflow for a four week period.

### **When to Declare an Emergency for Regulated Steams**

A water shortage Emergency exists when a water utility is experiencing a water shortage.

A water shortage Emergency should be declared when the demand is more than 60 percent of the streamflow.

Measure upstream reservoir level/shortage daily. Measure stream flow daily. Remove Emergency phase when the demand is less than 60 percent of streamflow for a four-week period.

## **RESERVOIRS AND IMPOUNDMENTS**

### **Normal Phase**

Measure flow, outflow, level and storage daily. Estimate evaporation and seepage losses.

### **When to Declare an Alert for Reservoirs and Impoundments**

The water shortage Alert should be placed in effect when conditions indicate the potential for serious water supply shortages.

A potential shortage would exist when there are less than 180 days supply left: or when projected shortages may not fully recover by the end of the next recharge period if conditions persist. In some systems, a water shortage conservation phase might be warranted with an even larger supply. Supply should be reassessed daily.

### **When to Declare a Conservation Phase for Reservoirs and Impoundments**

The water shortage Conservation Phase should be placed in effect as soon as there are visible or measurable signs that supplies are significantly lower than the seasonal norm and are diminishing.

The water shortage Conservation Phase should be declared when there are less than 120 days supply in a reservoir; or when projected storage will not fully recover by the end of the next recharge period if conditions persist. Include incoming flow when making calculations. Supply should be reassessed on a daily basis.

### **When to Declare an Emergency for Reservoirs and Impoundments**

A water shortage Emergency exists when a water utility is experiencing a water shortage.

A water shortage Emergency should be declared when there is less than 45 days available supply; or if projected storage will not last until the next recharge period if conditions persist. Include incoming flow when making calculations. Supply should be reassessed daily.

## **RETURN TO NORMAL**

When water shortage conditions have abated and the water supply situation is returning to normal, water conservation measures employed during the Alert, Warning and Emergency phases should be decreased in reverse order of implementation. Permanent measures directed toward development of adequate water sources, long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent future shortages and respond to recurring water shortage conditions.

## **SUGGESTED RESPONSE ACTIONS**

### **PHASE I - NORMAL CONDITIONS**

For the systems:

Establish a Water Management Task Force to advise on preparing and/or revising the community water conservation plan and water shortage response ordinance and to meet as necessary during phases two through four to make decisions and implement community action. The Task Force should include representatives of major water users, officials responsible for county health and safety, and persons who can implement an effective public information and education program. The Task Force should be limited from 7 to 15 members and should be selected from the following sources: boards of health and safety, sanitation departments, businesses, industries, chambers of commerce, city/county/school administrators, professional groups, legal and media representatives, conservation districts, disaster services agencies, fire and/or police chiefs, and water system personnel.

Prepare a written community water conservation plan outlining response to water shortages, for which this document could be used as a model.

Enact (or prepare for quick enactment when needed) a water shortage response ordinance providing local officials with the power to implement the water conservation plan to ensure that the use reduction goals can be met and that use restrictions are equitably distributed among user classes.

Establish a public information and education program to ensure consistent and timely reports to the public under phases two through four. Water users need to know why they are conserving: lack of supply or delivery system deficiencies. The type of measures and the education campaign need to be different for each reason.

Implement a supply-side water conservation program consisting of leak detection and repair and public use metering. Set a goal to keep unaccounted for water losses below 10 percent.

### **Yield Determination**

For systems utilizing ground-water sources:

Pre-drought data are critical to a successful ground water conservation plan. Systems should conduct the following procedures to obtain needed information on the wellfield and aquifer.

- (1) A minimum 8-hour step test to establish well efficiency and specific capacity during normal climatic conditions. Periodic retests (every 2-5 years according to well construction and the type of aquifer) to determine the rate of decline in efficiency and the need for maintenance.
- (2) A minimum 24-hour pumping test with continuous measurements in the pumping well and at least one observation well to determine hydraulic conductivity, transmissivity, and drawdown under normal climatic conditions. A pumping test will also help identify the size and extent of the cone of depression around the pumping well and the presence of recharge and impermeable boundaries.
- (3) Develop and/or maintain at least one observation well for monitoring water levels in the aquifer in addition to monitoring water levels in the pumping well. The monitoring well could be an unused or back-up well in the wellfield. If the monitoring well is a well that has been abandoned in the wellfield due to a decline in yield, it is important to make sure the well being used to monitor water levels is in good hydraulic connections with the aquifer. It may be necessary to clean up the monitoring well to ensure the collection of representative aquifer data.
- (4) Measure critical pumping levels for each well. Typically this is the top of the screen in a sand and gravel well or, in some bedrock wells, it is where the specific capacity drops off suddenly.
- (5) Obtain well logs for all wells in the system, and any additional well construction information. Know the depth of pump settings. Maintain files of all maintenance records as well as historic pumping schedules for all wells.
- (6) Collect the following information at least biweekly:
  - a. Ground water levels in the pumping well(s) with the pump running. This should be performed after the well has been pumping for an extended period of time or, if several wells in the system are cycled on and off, the measurement should be made just before turning off the well.

- b. The static water level in the production well(s) with the pump not running. This should be done after the well has recovered for an extended period of time or just before the well is cycled on.
  - c. The static water level in all observation wells.
  - d. The total discharge from each well.
- (7) Conduct regular maintenance procedures for each pumping well to maximize yield and extend the life of the well. The following chart can be used as a general guideline to determine the maintenance interval for wells completed in different aquifers.

<u>Acquifer Type</u>	<u>Most Prevalent Well Problem</u>	<u>Major Maintenance Frequency Required</u>
Alluvial (sand and gravel)	Clay, silt, sand intrusion, scale deposition, iron, biological fouling	2 - 5 years
Sandstone	Fissure plugging by clay and silt, casing failure corrosion salt water intrusion, sand production, biological fouling	6-8 years
Limestone	Fissure plugging by clay, silt, carbonate scale, intrusion of poor quality water (upwelling)	5-10 years
Interbedded Sandstone and Shale	Low initial yields, plugging by clay and silt, limited recharge, casing failure, biological fouling	4-7 years

**For system utilizing surface-water sources:**

Pre-drought data are also critical to successful surface water conservation plan. This situation is complicated by the need to preserve, to the extent practical, the multi-use nature of surface water bodies (i.e., recreation, fish & wildlife values). Systems should conduct the following procedures to obtain needed information on their streams or reservoir sources.

- (1) Determine sources yields for various duration and drought frequencies.
- (2) Install/maintain stream reservoir gauges and monitor streamflow or reservoir levels at least weekly; and for reservoir systems.
- (3) Conduct reservoir sedimentation studies; and

- (4) Determine reservoir storage volumes at various reservoir elevations.

## **PHASE 2 - DROUGHT ALERT**

### **For all systems:**

Implement system-wide voluntary water conservation measures, and establish a use reduction goal of 10 percent. Consider distributing household water conservation kits. Industrial and commercial users should be included in these conservation efforts. Monitor Actual water use to assess the success of the voluntary conservation measures.

Accelerate supply-side water conservation efforts, and place use restrictions on certain public water uses.

Implement the public information and education program developed to coincide with this phase.

### **For systems utilizing ground-water sources:**

With the onset of Alert conditions, each water system should develop a plan for optimizing the yield from the wellfield. The plan should include (1) identification of critical pumping levels; (2) the feasibility of lowering pumps in existing wells; (3) accelerated maintenance schedule for inefficient wells; (4) weekly measurement of pumping levels, static water levels, and discharge; (5) feasibility plans for drilling for a multi-well system.

Unusually low ground water levels in a production well only when the well is pumping may be an indication that the efficiency of the well has declined and the well is in need of maintenance.

### **For systems utilizing surface water sources:**

Monitor streamflow of reservoir levels daily and reassess the supply situation weekly.

## **PHASE 3 CONSERVATION**

### **For all systems:**

Implement mandatory water conservation measures appropriate to this phase, and establish a use reduction goal of 20 percent. Monitor actual water use to assess the success of mandatory water conservation measures. Contact water users who have not reduced water usage appropriately.

Implement the public information and education program developed to coincide with this phase.

Mandatory restriction of lawn and garden watering should be enacted between specific hours on specified days.

Request that active conservation measures be practiced by all users. Individually contact industrial and any other large volume users to reduce water usage.

## **PHASE 2 - DROUGHT ALERT**

### **For all systems:**

Implement system-wide voluntary water conservation measures, and establish a use reduction goal of 10 percent. Consider distributing household water conservation kits. Industrial and commercial users should be included in these conservation efforts. Monitor Actual water use to assess the success of the voluntary conservation measures.

Accelerate supply-side water conservation efforts, and place use restrictions on certain public water uses.

Implement the public information and education program developed to coincide with this phase.

### **For systems utilizing ground-water sources:**

With the onset of Alert conditions, each water system should develop a plan for optimizing the yield from the wellfield. The plan should include (1) identification of critical pumping levels; (2) the feasibility of lowering pumps in existing wells; (3) accelerated maintenance schedule for inefficient wells; (4) weekly measurements of pumping levels, static water levels, and discharge; (5) feasibility plans for drilling for a multi-well system.

Unusually low ground water levels in a production well only when the well is pumping may be an indication that the efficiency of the well has declined and the well is in need of maintenance.

### **For systems utilizing surface water sources:**

Monitor streamflow of reservoir levels daily and reassess the supply situation weekly.

## **PHASE 3 - CONSERVATION**

### **For all systems:**

Implement mandatory water conservation measures appropriate to this phase, and establish a use reduction goal of 20 percent. Monitor actual water use to assess the success of mandatory water conservation measures. Contact water users who have not reduced water usage appropriately.

Implement the public information and education program developed to coincide with this phase.

Mandatory restriction of law and garden water should be enacted between specific hours on specified days.

Request that active conservation measures be practiced by all users. Individually contact industrial and any other large volume users to reduce water usage.

Notify consumers of impending reduction of water and pressure.

Filling of any new or existing pool should be restricted. Addition of makeup water would be prohibited if pool is not covered when not in use.

Discontinue flushing water lines, fire hydrants and distribution equipment.

System should be prepared to access alternative sources such as wells or interconnections if possible.

Initiate reductions in water use for agriculture especially golf course irrigation and encourage the use of treated wastewater for irrigation if applicable.

**For system utilizing ground water:**

The plan for optimizing the yield from the wellfield developed during the Alert phase should be implemented.

Measure pumping well discharge and water levels in the pumping and observation wells on a daily basis.

**For system utilizing surface water:**

Monitor streamflow or reservoir levels daily and assess the supply situation daily.

**PHASES 4 - EMERGENCY**

**For all systems:**

Implement more stringent mandatory water conservation measures appropriate to this phase, and establish a use reduction goal of 30 percent.

Implement the public information and education program developed to coincide with this phase.

Implement back up and emergency supply sources.

## **SUGGESTED MEASURES FOR CONSERVATION**

### **Conservation Measures for Residential Users:**

- (1) Locate and repair all leaks in faucets, toilets, and water-using appliances.
- (2) Adjust all water-using appliances to use the minimum amount of water in order to achieve the appliance's purpose.
- (3) Use automatic washing machines and dishwashers only with full loads. Preferably, wash dishes by hand.
- (4) Take shorter showers and shallower baths.
- (5) Turn off faucets while brushing teeth, etc.
- (6) Turn off shower while soaping up.
- (7) Set temperature settings of hot water at least 10 degrees lower to discourage lengthy shower taking.
- (8) Where plumbing fixtures can accommodate them, install flow-restricting or other water-saving devices.
- (9) Reduce the number of toilet flushes per day. Each flush uses about 5 gallons. Reduce water used per flush by installing toilet tank displacement inserts.
- (10) Use sink and tub stoppers to avoid wasting water.
- (11) Keep a bottle of chilled water in the refrigerator.

### **Conservation Measures for Non-Residential Users:**

- (1) Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam using machines, washing machines, water-cooled air conditioners, and furnaces.
- (2) Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
- (3) Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
- (4) Shorten rinse cycles for laundry machines as much as possible; implement lower water levels whenever possible.
- (5) For processing, cooling and other uses where possible; either reuse water or use water from sources that would not adversely affect public water supplies.
- (6) Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install toilet tank displacement inserts; place flow restrictions in shower heads and faucets; close down automatic flushes overnight.
- (7) Install automatic flushing valves and/or adjust to cycle at longer intervals.
- (8) Place water-saving posters and literature where employees.
- (9) Check meters on a frequent basis to determine consumption patterns.
- (10) Review usage patterns to see where other savings can be made.

**Direct Hospitals and Health Care Facilities to Adopt the Following Conservation Measures:**

- (1) Reduce laundry use or services by changing bed linen, etc., only when necessary to preserve the health of patients or residents.
- (2) Use disposable food service items.
- (3) Eliminate, postpone, or reduce, as many be appropriate, elective surgical procedures during the period of the emergency.

**SUGGESTED ACTIONS FOR EFFECTIVE RESPONSE  
AT EACH DROUGHT STAGE**

<b>NORMAL</b>	<b>ALERT</b>	<b>CONSERVATION</b>	<b>EMERGENCY</b>
STRESS WATER CONSERVATION	INITIATE 10% REDUCTION GOAL	INITIATE 20% REDUCTION GOAL	INITIATE 30% REDUCTION GOAL
<b>PUBLIC WATER SUPPLIERS</b>			
Develop and annually update drought plan as part of your required Emergency Contingency Plan	Activate Water Conservation Plan.		
Develop ordinances for enforcement.	Alert public of water shortage.	Increase public awareness interest.	Notify consumers of severity of water shortage.
Initiate broad-based public education on water conservation.		Request and/or require that active conservation measures be practiced.	Ban water use for all non-essential domestic use.
Maintain accurate water monitoring and consumption records.	Activate water conservation measures.	Notify consumers of impending reduction of water and pressure.	Conduct field surveillance of abuses, leaks, etc.
Monitor water production on a daily basis and submit readings on a monthly basis to the State of Ohio.	Disseminate information on water conservation.	Individually contact industrial users to reduce water usage.	Execute enforcement of water conservation violators.

**SUGGESTED ACTIONS FOR EFFECTIVE RESPONSE  
AT EACH DROUGHT STAGE**

<b>NORMAL</b>	<b>ALERT</b>	<b>CONSERVATION</b>	<b>EMERGENCY</b>
<b>STRESS WATER CONSERVATION</b>	<b>INITIATE 10% REDUCTION GOAL</b>	<b>INITIATE 20% REDUCTION GOAL</b>	<b>INITIATE 30% REDUCTION GOAL</b>
<b>PUBLIC WATER SUPPLIERS</b>			
Establish cooperative agreements with other suppliers for emergency connectors.	Aggressively pursue leak detection surveys and repair programs.	Reduce water pressure to minimum possible/available levels.	Activates distribution system interconnections as required.
Determine unaccounted for water loss. Implement leak detection and repair.	Reduce water usage for main flushing, street flushing and park irrigation.	Discontinue flushing water lines, fire hydrants and distribution equipment.	Verify availability of emergency water for maintenance of human life.
Develop meter installation replacement and calibration program.	Caution industrial users to reduce water usage.	Distribute water conservation kits to large volume customers.	
Develop plans for additional storage and treatment facility.			
<b>RESIDENTIAL WATER USE</b>			
Repair leaks and drips.	Reduce lawn watering.	Restrict lawn watering and pool filling.	Eliminate all nonessential use.

**SUGGESTED ACTIONS FOR EFFECTIVE RESPONSE  
AT EACH DROUGHT STAGE**

<b>NORMAL</b>	<b>ALERT</b>	<b>CONSERVATION</b>	<b>EMERGENCY</b>
STRESS WATER CONSERVATION	INITIATE 10% REDUCTION GOAL	INITIATE 20% REDUCTION GOAL	INITIATE 30% REDUCTION GOAL
<b>RESIDENTIAL WATER USE</b>			
Install water conserving fixtures during new construction and rehabilitation.		Specific limits on nonessential water use will be stated in guidance furnished to domestic users.	
<b>INDUSTRIAL AND COMMERCIAL USERS</b>			
Develop water emergency plan.	Activate water emergency plan.	Eliminate water for non-essential uses.	Reduce production levels.
Develop water shortage facilities such as on-site storage.	Activate conservation measures.	Access alternative sources, such as wells.	Activate arrangement to buy emergency water.
Develop water conservation measures.	Reduce water for nonessential uses.		Reduce hours of operation.
Identify water use priorities/user hierarchy.	Water will be served in restaurants only when requested by customer.	Notify users of accepted hierarchy.	Request assistance from local governments.

**SUGGESTED ACTIONS FOR EFFECTIVE RESPONSE  
AT EACH DROUGHT STAGE**

<b>NORMAL</b>	<b>ALERT</b>	<b>CONSERVATION</b>	<b>EMERGENCY</b>
STRESS WATER CONSERVATION	INITIATE 10% REDUCTION GOAL	INITIATE 20% REDUCTION GOAL	INITIATE 30% REDUCTION GOAL
<b>INDUSTRIAL AND COMMERCIAL USERS</b>			
Develop and implement a water recycling program.	Recycle water where appropriate (e.g., reuse cooking and processing water).		
<b>AGRICULTURAL USERS</b>			
Identify major users and agencies to act as spokesperson and advocacy group to establish threshold levels of irrigation.	Notify critical users and encourage consultation with the State's Department of Agriculture.	Initiate reduction in water use for agriculture especially golf course irrigation.	Curtail agricultural irrigation uses to meet threshold use criteria.
	All irrigation uses should be voluntarily reduced.	Irrigation should be conducted between 5:00 P.M. and 7:00 A.M.	
		Treated wastewater irrigation should be encouraged in accordance with discharger plans.	