KGCA Drought Management Policy

Introduction

Moderate to severe droughts can adversely impact our water system's ability to supply adequate quantities of water to the community and maintain reserves to fight potential fires. Additionally, prolonged drought conditions can adversely impact water availability. Therefore it is important for us to identify those conditions at the onset of very dry conditions that lead to droughts that produce these water supply concerns.

KGCA can implement mitigation measures that if proactively employed, can greatly minimize the effects of drought and maintain emergency supplies of water. The measures must be employed in a timely manner to ensure protection of the available water supplies. These protective measures must be reasonable and at the same time effective. Thus it is important that the measures to be employed and the "triggers" that dictate their application, be contained in the written Drought Management Policy (DMP).

Intent, Purpose and Goals of the Drought Management Policy

The Drought Management Policy (DMP) establishes effective operating procedures for managing water demand and evaluating supply options before, during and after a drought related water shortage.

The purpose of the Drought Management Policy (DMP) is to maximize the efficient use of limited water resources under the water system's control in order to protect the health and safety of the community and the environment.

The goals of the DMP are to achieve the greatest benefit for domestic water use, sanitation, fire protection and irrigation while providing water to all users in an equitable manner. The DMP outlines the framework by which the water system will prepare for water shortages and when and how procedures for mitigating the effect of the drought will be implemented.

Definition of Terms Used in the Drought Management Policy

The following definitions will apply when used in the Drought Management Policy:

Board	Kahler Glen Community Association Board
Commercial Use	Water use integral to the production of goods and/or services by any establishment having profit as its primary aim.
Conservation	Reduction in water use to prevent depletion or waste of the resource
Customer	Any person, company or organization using water supplied by the Water System
Community	Kahler Glen Community Association
Domestic Water Use	Water use for personal needs or for household purposes such as drinking, bathing, heating, cooking, sanitation or for sanitary cleaning in a residence, business, industry or institution.
Drought Alert Phases	There are four drought alert phases: Level 1, Level2, Level3, Level4
Drought Management Policy Administrator	Person responsible for initiating and administrating the Drought Management Policy
Essential Water Use	Water used specifically for firefighting, maintaining legal requirements to satisfy Federal, State or local public health and safety requirements
Irrigation Water Use	Finished water used for gardens, trees, lawns, shrubs, flowers, athletic fields, rights-of-way and medians, etc., to maintain healthy growth.
Level	Graduated implementation of appropriate measures
Non-essential Water Use	Categories of water use other than Essential Water Use. Examples of non-essential water use include irrigation water use and used for washing other than food preparation.
Non-residential landscape irrigation	Means the irrigation of landscape not included within the definition of “residential landscape irrigation”, such as that associated with community common areas and commercial use property.
Residential landscape irrigation	Means the irrigation of landscape associated with any housing unit.
Water Supply Shortage	Lack of adequate, available water caused by drought to meet normal demands
Water Rationing	Operation of the Water System in such a manner to intentionally limit water system volumes or pressures to customers to conserve available water
Trigger	Actions taken on implemented drought level

Drought Management Authority

The purpose of this policy is to establish authority to implement drought emergency measures when necessary to do so based on a Drought Management Policy for the private water supply system at Kahler Glen.

The Policy shall be initiated by the Kahler Glen Community Association Board based on weather and water operating conditions described in the policy that occur simultaneously. The Board will notify each water system customers about active drought levels by posting information in a conspicuous location at the site visible to all customers, this information will also be posted on the community website and specific information will be provided by email to all customers.

Water System Customer Responsibilities

Each customer connecting to the system will be provided an educational brochure that describes the Drought Management Policy.
Each customer, as a condition to connection to the water system, shall be required as a condition of water service, to allow access to private property by authorized water system owner's representative(s) for the purposes of locating violations of this policy during a declared drought condition by the Owner.

Water System Operators Responsibilities

The water system owner shall be responsible to inform water system operators on how to operate and maintain the private water system. Each employee and each contract employee will be provided with a copy of this policy. As a condition of employment they follow the provisions described in it. System operators will ensure that the policy is adhered to when a Drought Emergency has been declared by the KGCA Board.

Drought Action Levels

Unlike many other emergency situations, drought severity of droughts develops over time and, therefore, allows for a graduated implementation of appropriate measures. The Drought Management Policy defines action levels with appropriate levels of response, given the severity of the situation.

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Drought Management Policy Supporting Documentation

Introduction

To ensure that a Water Supply System effectively manages its water system during drought related conditions, a written policy is necessary for system operation and reliability, proper communications, effective coordination and ultimate allocation of water to customers and other designated users to respond to drought conditions and to enforce the water use restrictions where applicable.

Designation and Duties of Drought Management Policy Administrator

The official responsible for initiating and administrating the Drought Management Policy will be designated in the Policy. This person is responsible for resolving water equity issues that will arise from enforcement of the mandatory descriptive program. This person will also inform system users about the Policy requirements and will serve as the principal contact for the news media as the water system's drought response representative.

Water System Layout, Water Sources, Capacities and Yields

The Drought Management Policy includes a schematic of the water system's service area, describes the systems well plant capacity, and identifies the water system's water storage capacity for meeting average day and peak day water demand.

Recognized Drought Management Operational Triggers

Operational triggers are those operating conditions that appear in combination and indicate deteriorating operating conditions that may exist in our water system. A combination of these operating triggers adversely impacts that water system's ability to provide an adequate and sustainable water supply to meet customer demand. Generally triggers will indicate the level of drought mitigation measures that need to be immediately employed by the responsible water administrator.

It should be noted that once triggers are set they must be used or the system's drought management policy is compromised and will likely not be effective. The DMP can always be modified to meet newly discovered conditions based on experience, but changes should never be made ad hoc to fit community and political pressures and should follow sound technical operating conditions that can be supported by sound data collected during a drought incident.

Trigger 1: (Level 1) Drought Advisory or higher declared by the Washington State Drought Management Task Force.

Trigger 1 Response:

1. Review DMP procedures for updated information
2. Update drought management information on community website
3. Post information at key locations onsite
4. Send email to the community informing them of the drought advisory

Implement level 1 voluntary restrictions.

Trigger 2: (Level 2) Streamflow Trigger: Implement water restrictions whenever DOE surface water restrictions are put in place.

Trigger 2 Response:

1. Implement mandatory 67% irrigation water use reduction (Based on 2015 water capacity) this percentage can be altered based on irrigation capacity changes.
    a. Inform businesses of mandatory 67% irrigation water use reduction
    b. Inform community of mandatory 67% irrigation water use reduction
2. Shutdown Nason Creek pumps
    a. Inform businesses of creek pump shutdown
    b. Inform KGCA staff of creek pump shutdown
3. Lockout power switch for creek pumps
4. Stop water flows to ponds 9, 16, 18
5. Route pond 4 irrigation directly to pond 1
6. Update drought management information on community website
7. Post information at key locations onsite
8. Send email to the community informing them of the level 2 implementation
9. Implement pond and well level monitoring
10. Notify all entities at Kahler Glen of requirements for drought level 2.
    a. Complete level 2 irrigation reduction form and send to KGCA Manager.
        i. Active and inactive sprinkler list with gallons per minute rating.
        ii. Watering schedule and timing plan per day
        iii. Estimated daily water usage per schedule
    b. KGCA Manager will monitor and validate water use for submitted “irrigation reduction forms”
    c. Entities not complying with submission of completed “irrigation reduction forms” within 5 days of trigger 2 implementation will be considered in violation of the DMP trigger 2 requirements.

11. Residential irrigation requirements

    a. KGCA is requiring residents to reduce their outdoor water use by reducing their outdoor irrigation of lawn and landscaped areas to no more than three days per week, for ten minutes per watering station.
    NOTE: The 10-minutes-per-day time limit does NOT apply to landscape irrigation systems using water-efficient devices, including drip and micro-irrigation systems and stream rotor sprinklers. However, these water-efficient systems should follow the three-day-per-week schedule
    b. Time limits apply to standard sprinkler systems.

12. EXCEPTIONS TO LANDSCAPE IRRIGATION SCHEDULE

    a. Landscape irrigation shall be subject to the following irrigation schedule exceptions:
    b. Irrigation using a micro-spray, micro-jet, drip or bubbler irrigation system is allowed anytime.
    c. Irrigation of new landscape is allowed at any time of day on any day for the initial 30 days and every other day for the next 30 days for a total of one 60-day period, provided that the irrigation is limited to the minimum amount necessary for such landscape establishment.
    d. Watering in of chemicals, including insecticides, pesticides, fertilizers, fungicides, and herbicides when required by law, the manufacturer, or best management practices is allowed any time of day on any day within 24 hours of application. Watering in of chemicals shall not exceed ¼ inch of water per application except as otherwise required by law, the manufacturer, or best management practices.
    e. Irrigation systems may be operated any time of day on any day for maintenance and repair purposes not to exceed 20 minutes per hour per zone.
    f. Irrigation using a hand-held hose equipped with an automatic shut-off nozzle is allowed any time of day on any day.
    g. The use of water from a reclaimed water system is allowed anytime. For the purpose of this paragraph, a reclaimed water system includes systems in which the primary source is reclaimed water, which may or may not be supplemented from another source during peak demand periods.

Trigger 3: (Level 3) Irrigation pond levels are dropping with 67% irrigation restrictions

Trigger 3 Response:

1. Update drought management information on community website
2. Post information at key locations onsite
3. Send email to the community informing them of the level 3 implementation
4. Print and distribute level 3 drought restriction requirements to all homes and businesses. (This will be based on event specific to each drought situation)

5. Require all rentals to post drought restriction information provided on the KGCA website
6. Non-business irrigation – Review adherence to level 2 irrigation reduction requirements
7. Business irrigation – Review adherence to level 2 irrigation reduction requirements
8. Reduce allowed irrigation levels based on optional trigger mechanisms defined in this policy.

Trigger 4: (Level 4) Ground water well levels drop in static well level that exceeds allowed levels

Trigger 4 Response:

1. Update drought management information on community website
2. Post information at key locations onsite
3. Send email to the community informing them of the level 4 implementation
4. Print and distribute level 4 drought restriction requirements to all homes and businesses
5. Residential landscape irrigation: Shutoff irrigation for 5 days and monitor water levels. Re-evaluate irrigation shutoff based on ground water level recovery
6. Non-residential landscape irrigation: If non- residential landscape irrigation shutoff did not achieve ground water level recovery. Shutoff irrigation for 5 days and monitor water levels. Re-evaluate irrigation shutoff based on ground water levels
7. Business domestic water voluntary reductions
8. Non-business domestic water voluntary reductions

The following optional trigger mechanism options for the KGCA water system:
(Can be used in conjunction with triggers 3 & 4)

- Surface water rights have been restricted
- Inability to Refill Storage Tank(s)
- Draining of Storage Tank Under Peak Demand Conditions
- Daily Well Production at 30% over Previous Month Average
- Daily Well Production at 50% over Previous Month Average
- Well run log that exceeds 2 times daily average
- Monthly Water Use that is 30% above Previous Month Average
- Monthly Water Use that is 50% above Previous Month Average
- Drop in Static Well Level that Exceeds X feet
- Drawdown Interference noted when running wells in combination
- Low Pressure Complaints During Peak Demand Periods
- Low Pressure Complaints During Peak and Non-Peak Periods
- Areas in the Water System with Pressure below 20 psi

- Demands that exceed permitted capacity
- Deterioration of Water Quality Caused by High Flow Conditions
- Exceeding Engineering Demand Estimates for Current Period
- No Measurable Precipitation for 4 weeks
- Water Management District issued water restrictions, advisory, etc.
- Significant Increases in authorized or unauthorized water usage

Drought Management Policy Conditions and Phases

Specific Drought and Water Shortage Indicators

The DMP includes a description of the water system indicators that will be used to identify the drought conditions that must exist in order for the water supply to become compromised and thus may not be adequate to meet system demand.

In general 3 conditions are necessary to produce a drought emergency:

1. A combination of dry and high temperature conditions that result in above average water demands on the water system
2. Surface water restrictions are put in place, reducing water pumping capacity
3. Cumulative effects on the aquifer from dry conditions which lower pumping levels in system wells. Lower well pumping levels adversely affect well capacity and may prevent existing wells from providing necessary flow volumes and/or may jeopardizing the well stability when certain well combinations are used together.

Drought Management Policy Mitigation Efforts

Description Water System Ability to Maintain System Reliability

Review current water system capabilities and in identifying and recommending capital improvements to improve the water system's ability to get through times of drought.

It is important that we aggressively plan and build for future needs. This often means that the water system must continue to provide for system operation flexibility while providing improved pumping and storage capacity and new technologies to meet the demands of tomorrow. Develop a "Capacity Analysis" this analysis is essential in identifying how past efforts have enhanced the system's ability to meet demand during drought conditions. Typically it will be necessary to also update the system's ongoing capital improvement program over the next five years.

Water Conservation Planning Benefits

This document identifies techniques to reduce water consumption. Generally conservation measures will be implemented in three phases.
These include: Basic Water Conservation, Intermediate Water Conservation, and Advanced Water Conservation measures. These measures are implemented over a period of one to ten years. Implementing conservation measures generally leads to a long-term water conservation plan.

Drought Management Phases, Conservation Goals, Metrics and Water Conservation Measures

Drought Levels

Five levels of drought have been developed to characterize drought severity:

1. Normal (Green)
2. Level 1 (Yellow) - Advisory (voluntary)
3. Level 2 (Orange) – 67 % irrigation water use restrictions (mandatory)
4. Level 3 (Brown) – Irrigation pond levels are dropping with 67% irrigation restrictions
5. Level 4 (Red) - Ground water well levels drop in static well level that exceeds allowed levels

Drought Designations and Water Use Requirements

Water uses that are regulated or prohibited under the Policy are considered to be “Non-Essential” and continuation of such uses during times of water supply shortages is deemed to constitute a waste of water that may subject the offender(s) to penalties and/or including discontinuation of service.

To reduce non-essential water demand, regulations and restrictions on the delivery and consumption of water are adopted by the water system. These restrictions are keyed to the declared drought phase.

Enforcement of Mandatory Water Conservation Measures

If any customer or customer employees, contractors or agents violates a Mandatory Water Conservation Measure, the customer shall be warned and/or served by written notice by email & registered mail, of such failure to comply. The citation shall include the date, time and type of water use violation.

After a warning has been issued, fines may be assessed individually for each occurrence, for any type of prohibited activity. Fines may be assessed as surcharges that will be added to the amounts assessed on the monthly community bill with the following schedule:

Verbal Warning – A customer may be notified at any time by any means in writing such as a door hanger, email or in person by the water purveyor, or water purveyor's authorized agent, that a water violation has been observed on the customer's premises. A verbal warning is optional by the water purveyor and will depend on the severity of the drought emergency.
First Violation – A written warning issued to the customer's billing address that describes the violation(s) and that Mandatory Water Conservation Measures are in place. This violation is to be delivered by email with return receipt requested.
Second Violation – A $50.00 surcharge may be added to the customer's community bill for each violation noted by the Water Purveyor after the written warning has been received by the customer by registered mail.
Third Violation - An additional $100.00 surcharge shall be added to the customer's community bill for each and any violation(s) after the Second Violation. This violation is to be delivered by registered email.
Fourth Violation - The customer's water service may be immediately terminated and restored only after payment of a surcharge of $500.00 in addition to all previously assessed surcharges and water charges that may be due. This violation is to be delivered by registered email

Nothing in this section will prevent the water purveyor from rationing water to any customer location, where in the purveyor's opinion, violations of the mandatory Water Conservation Measures are occurring.

Variances to the Drought Management Policy
It is recognized that situation may occur where customers, who in their belief, are unable to comply with the mandatory water use restrictions. Any customer may petition for a variance from restrictions by submitting a written petition to the KGCA Board within ten (10) working days after the issuance of the Proclamation requiring water use restrictions.
All petitions for variance shall contain the following information:

A. Name and address of the customer and the name and address of the person filing the petition if different
B. Purpose of water usage
C. Special provision from which the petitioner is requesting relief
D. Detailed statement as to how the curtailment declaration adversely affects the petitioner
E. Description of the relief desired
F. Period of time for which the variance is sought
G. Economic value of the water use
H. Damage or harm to the petitioner or others if petitioner complies with the Water Conservation Measures
I. Restrictions with which the petitioner is expected to comply and the compliance date
J. Steps the petitioner is taking to meet the restrictions from which the variance is sought and the expected date of compliance
K. Any other information that the petitioner believes pertinent.

In order for the variance to be granted, the petitioner must demonstrate clearly that compliance with the Water Conservation Measures cannot be technically accomplished during the duration of the water supply shortage without having an adverse impact upon the petitioner's interests.
In order for the variance to be granted, the petitioner must demonstrate clearly that compliance with the Water Conservation Measures cannot be technically accomplished during the duration of the Declared Phase without having an adverse impact upon the petitioner's interests.
Variances will not be granted under conditions that in the Water Purveyor's opinion may result in adverse impact on the water supply or may result in setting of precedents that may collectively cause adverse impact to the water supply.
Where variances are granted, other penalties provisions may be imposed incorporated as a condition for the granting of the variance.

Legal Status of the Ordinance or Drought Management Policy

1. Nothing in this Policy shall be deemed to invalidate or be interpreted in a manner inconsistent with any covenants now in effect.
2. All water requirements of regulatory agencies that have been enacted by law shall be adhered to and hold precedence over any rules in the Drought Management Policy.

Determination of the End of a Drought

Determinations regarding the end of a drought or reduction of the drought level focus on two key drought indicators: precipitation and groundwater levels. These two factors have the greatest long-term impact on streamflow, water supply, reservoir levels, soil moisture and potential for forest fires. Precipitation is a key factor because it is the overall cause of improving conditions. Groundwater levels respond slowly to improving conditions, so they are good indicators of long-term recovery to normal conditions.