

# **Drought Management Plan**

**For**

# **City of Munford**

## **Water System**

**PWSID: 0000490**

**Date: June 10, 2016**

**Authority and Status to Plan.**

City of Munford is a municipal corporation chartered and organized under the laws of the State of Tennessee. The City of Munford owns and operates a water treatment plant and distribution system serving the citizens of the City of Munford and the surrounding area. The Mayor of the City of Munford has the authority to implement a drought management plan. Mayor Cole requested a motion for approval of the Drought Management Plan for the City of Munford Water System ON June 27, 2016 as required by TDEC. *Motion was made by Alderman Forbess to approve the Drought Management Plan for the City of Munford Water System. Motion was seconded by Alderman Arthur. Motion carried, all members present voting aye.* The chief water treatment plant operator has been given the responsibility to complete the plan.

**System Characteristics and Risks.**

The City of Munford’s System has approximately 3282 water connections plus wholesaling water to the Town of Atoka. Using the household factor of 2.5 persons per household for Tipton County. This is equivalent to approximately 5,250 persons. The usage is categorized as follows:

Water Use Category	Use in Gallons (Avg)	Percent of Total Usage	Peak Water Use	Percent of Total Usage	Increase in Gallons	Percent Increase (peak over avg)
Residential	16,177,992	59.9	35,773,380	62	19,595,388	63
Atoka	7,000,000	25.9	15,578,730	26	8,578,730	27
Commercial	2,400,000	8.8	4,038,930	7	1,638,930	6
Non Metered	1,500,000	5.5	2,307,960	4	807,960	4
Total	27,007,992	100	57,699,000	100	30,691,008	46

The City of Munford Water Treatment Plant is a conventional groundwater plant with a design capacity of approximately 2.6 million gallons per day. Average usage for the system is approximately 1 million gallons per day. The maximum daily pumpage in recent years, which occurred in June, 2007, was 1.7 million gallons per day. The treatment plant uses the four wells as its raw water source. The distribution system contains five water storage tanks with a combined capacity of 1.6 million gallons. The Water Treatment Plant Facility utilizes four deep wells to draw water from the Memphis Sands Aquifer at an average depth of about 550feet. Treatment is accomplished by aeration for iron oxidation and CO2 removal, followed by chlorination, fluoridation, pH adjustment and iron filtration. In its present configuration, the WTP will produce approximately 2.6 Million gallons of treated water per day.

**Purpose of the Drought Management Plan.**

Typically, drought has not affected the water source in past years. The purpose of this plan is to reduce water demand in the event of a drought where existing water supplies are inadequate to meet current demand for potable water. The significance of taking into account water use on

average and during peak water demand (though it may not reflect an extreme or exceptional drought) is that system officials can identify water uses that have the potential to be reduced more easily. The point here is to identify potential discretionary or non-essential water uses. It is evident from the data above that water use by residential users typically increases 63 percent over average water use. The six percent increase in commercial use indicates that this area may not be easily reduced.

Because water use data reflects a typical peak summer water use but not necessary a moderate, severe or extreme drought, additional water use could be expected by residential customers on the system to water cattle and other livestock, though they usually rely on ponds and small streams which are likely to be depleted in a severe drought.

During the droughts of 2007 and 2008, the water treatment plant was able to meet customer demand with no restrictions implemented. Static water levels in our wells remained at normal levels. Presently there are emergency connections with Poplar Grove Utility and First Utility District, however since their source is also groundwater, a drought that affects the City of Munford would likely affect them.

### **Drought Management Plan within the Context of an EOP.**

Development of the City of Munford's drought management plan and EOP were assigned to the chief water plant operator. He organized a team of individuals, including employees and local officials to help organize and frame the plan. The City of Munford's EOP addresses line breaks, storms, earthquakes, hazardous material spills and civil disturbances. The EOP is not available for public scrutiny. The drought management plan focuses attention on managing supplies and demand during a declared drought.

### **The Planning Committee**

The City of Munford's drought management plan is a separate component of the Emergency Operation Plan (EOP). It was developed by Water Department staff of the city, but included a focus group in its development and review. Unlike the EOP to which the drought plan is an "annex," the drought plan includes a standby rate structure, restricts some water uses and in some cases bans other water uses at times. The drought management plan was adopted by the mayor and town council. The final adoption process was the normal process used by city council to adopt ordinances allowing for public comment.

### **Goals – Objectives and Priorities.**

The initial goal of the drought management plan was to provide water to all priority uses as established by the water system under worsening drought conditions (three levels). The water uses and levels of water availability take into account the maintenance of public health and safety, sustaining economic activity, preserving critical environmental resources and life activities.

### **General Water Uses in Order of Priority:**

- Hospital and medical facilities
- Nursing homes and elderly care facilities
- Human Consumption (Drinking water, domestic cooking, bathing, toilet use)
- Fire protection (structural facilities, and hazardous situations)
- Pets (animal hospitals, kennels) and livestock
- Environment (Erosion, Aquatic Habitat)
- Commercial Uses (Restaurant, Laundry, Office, Retail)

- Industry and Manufacturing (Sanitation, Process, Cooling)
- Recreation (Pools, Athletic Fields)
- Landscape (shrubbery) watering (Home and Commercial)
- Lawn watering, Vehicle Washing (Home and Commercial)

### **Ordinances, Policies and Legal Requirements.**

The city's drought management plan, rules, and policies are available for review at City of Munford City Hall

### **Well Static Water Levels**

During periods of drought or impending drought, operators at the City of Munford's Water Treatment will monitor the static water levels of system wells. US Drought Monitor (<https://www.drought.gov/gdm/current-conditions>) will be monitored to determine severity of drought. In the event that the static water levels begin to approach preset trigger points, the Tennessee Division of Water Resources will be contacted to discuss possible actions.

### **Phased Management.**

The drought response plan is broken into four phases: Drought Alert, Voluntary Water Reductions, Mandatory Water Restrictions and Emergency Water Management. The drought management phases and sets of trigger points along with their associated goals are described below. Failure to achieve a management phases goal within a reasonable time shall call for the next phase to be implemented.

### **Drought Alert.**

In the drought alert phase, no reduction in water use demand is planned. The City of Munford Water System will focus on monitoring conditions, prepare for the possible implementation of "Voluntary Reductions," and call its drought task force group together to review the plan and next-step actions. Drought Alert phase will be implemented when a goal of 1.4 MGD for (5) consecutive days or static water levels of 10%. Notify Memphis Environmental Field Office, Lew Hoffman (901)371-3000

### **Voluntary Water Reductions.**

Under "Voluntary Reductions" The City of Munford has established a water use reduction goal of 10 Percent. This figure corresponds to approximately 186,000 gallons per day water use judging by peak usage. Among the trigger points for implementing this phase would be a drop in static water levels of 20% or an increase in the usage to 1.6 million gpd for five consecutive days. The public appeal would consist of news releases to the media (weekly newspaper, local radio and regional television stations). Customers will be encouraged to use efficient water practices, e.g., watering lawns between sunset and sunrise, along with the more careful watering of shrubs and other landscape plantings. Notify Memphis Environmental Field Office, Lew Hoffman (901)371-3000

### **Mandatory Water Restrictions.**

The goal of activating a "Mandatory Water Restrictions" phase would be to reduce water demand by customers by 15 percent (from estimated peak demand). This would amount to a reduction of approximately 279,150 gpd. Vehicle washing will be restricted. Restrictions to car/vehicle washing will apply to commercial car washes that do not re-cycle water and to the domestic washing of cars, etc. Lawn and landscape watering will be restricted. To assist in reducing usage, the water system will reduce the amount of flushing where possible. Among

the trigger points for implementing this phase would be a drop in static water levels of 40% or an increase in the usage to 1.8 million gpd for five consecutive days. Restrictions will be provided to the public through the media and posted in public buildings such as libraries, city hall, court house, banks and grocery stores. A \$15.00 surcharge will be assessed to all customers using over 4000 gallons per month. System personnel will be utilized to monitor compliance with restrictions. Customers will also be requested to report violators of the restrictions. Notify Memphis Environmental Field Office, Lew Hoffman (901)371-3000

The following will be used to enforce restrictions:

- First offense - A written warning will be issued
- Second Offense - A \$50.00 fine
- Third Offense - Customer's water service will be discontinued for a minimum of 5 days. A reconnection fee will be required to have service restored.

**Emergency Water Management.** The “Emergency Water Management” phase of the drought plan would be triggered by severe water pressure or other hydraulic issues; the static water level drops 50% or more or the daily usage reaches 2 Million gpd for five consecutive days. The purpose of this phase would be to reduce water use to 25 percent of the peak demand. This would be a reduction of approximately 465,250 gpd. The water system will reduce the amount of flushing where possible. The media will be used to strongly encourage all customers to curtail any nonessential usage. A \$25.00 surcharge will be assessed to all customers using over 4000 gallons per month. System personnel will be utilized to monitor compliance with restrictions. Customers will also be requested to report violators of the restrictions. Notify Memphis Environmental Field Office, Lew Hoffman (901)371-3000

The following will be used to enforce restrictions:

- First offense - A written warning will be issued
- Second Offense - A \$50.00 fine
- Third Offense - Customer's water service will be discontinued for a minimum of 15 days. A reconnection fee will be required to have service restored.

**Customer’s compliance with restrictions will be monitored through the City’s Automated Meter Reading System**

**Media Contact Information/other methods of notification**

City website [www.munford.com](http://www.munford.com)

Social Media Community Development Director (901) 837-5972

Fox 13 Memphis (901) 320-1313

News Channel 3 (901)-543-2111

News Channel 5 (901) 726-0416

Covington Leader (901) 476-7116

Hand outs to customers

Signs and letters posted in Public places such as City Hall, Library and Fire Dept Etc.

## **Example: CITY OF MUNFORD DROUGHT MANAGEMENT PLAN INITIAION PUBLIC NOTICE**

The Chief Water Plant Operator of the City of the Munford has informed the Mayor that an DROUGHT ALERT is needed and the Mayor has declared such. Alert begins \_\_\_\_\_ and will be in effect until conditions improve. We are under the Voluntary Restrictions phase as of now; we are currently monitoring the conditions. Severity of the drought can change. They City of Munford will have updates through the media. Please go to [www.munford.com](http://www.munford.com) for the complete DROUGHT MANAGEMENT PLAN and trigger points that were used to implement the DROUGHT ALERTs,

### **Monitor Supply and Demand.**

The City of Munford established 3 drought management phases in addition to a “Drought Alert” Phase.

All four phases are described below. In addition, numerous trigger points were identified signaling the beginning of a phase.

### **Management Team.**

The City of Munford designated the chief water treatment plant operator to be the drought plan implementation Manager. He is ultimately in charge of managing the water system. In addition, the mayor of the town, the chief of the fire department and distribution supervisor make up the drought management group responsible for overseeing the implementation of the plan. They advise and assist the chief operator in gathering information, assessing the situation and recommend/advise/approve the chief operator's actions. The task group is activated and will meet as necessary once a “Drought Alert” has been initiated. A “Drought Alert” corresponds to the US Drought Monitor’s categorization of the water system’s service area as being characterized as under “Severe” drought conditions. The task group monitors water system conditions, including water demand, water supply, forecasted conditions, hydraulic conditions, water quality issues, impacted communities, public notification, plan modifications, staffing, trigger points and other issues related to the implementation of the plan. The task group and chief operator must also maintain records of their actions, system conditions at the time of management actions taken, and their effects. Finally, the drought management group and plan implementation manager must also determine and announce the step-down and/or deactivation of the plan.

### **Review, Evaluation and Up-dating the Management Plan**

The drought management plan was adopted on June 27, 2016 by the City of Munford Board of Mayor and Alderman. The drought manager will review the plan within 6 months after any phase of the plan has been implemented and/or every 3 years. Refinements to the drought management plan will be made as necessary. The drought manager is responsible for making the review and presenting that review before the council.

Chief Water Treatment Operator  
Justin Barkelew

Justin Barkelew

Mayor  
Dwayne Cole

Dwayne Cole

Public Works Director  
Mark Walker

Mark Walker

Fire Dept Chief  
Alan Barkelew

Alan Barkelew