

ALL ABOUT WATER IN HOT SPRINGS VILLAGE

**Lakes Committee - 2015
Revised March 2015**

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#1- Hot Springs Village Water Overview

The basic water flow in Hot Springs Village is from West to East. The northern part of the Village is in the Middle Fork of the Saline River drainage basin. The southern area is in the South Fork of the Saline River drainage basin. Two primary creeks channel water through Village property.

Mill Creek channels water through the northern area of the Village into Lake Desoto, then through Lake Cortez and on into the Middle Fork of the Saline River. Cedar Creek flows through the southern areas of the Village and through lakes Pineda, Coronado, and Balboa and then into the South Fork of the Saline River.

The Village covers approximately 41 square miles or 26,000 acres and has an estimated population of approximately 13,200 as of January 2013. There are a total of 34,146 residential lots and as of January, 2013, 8,575 have water meters. There are also 90+ commercial businesses in the Village with water meters.

Potable [household use] Water:

Water usage currently averages 2.4 million gallons per day (mgd) with a peak demand around 4 mgd. The source of potable water for the Village is the Middle Fork of the Saline River. Pumps are located on the Middle Fork on Village-owned property near the Cortez golf course area. These pumps move water into Lake Lago during high flow periods only, and can refill Lago at a rate of 7 mgd. Lake Lago is 100 acres and when full holds about 1 billion gallons, which is a 14-month supply if water is used at the current average rate, no pumping was allowed due to low water in the river, and no conservation measures were in effect. Hot Springs Village has valid riparian rights to water in the Middle Fork due to owning property on the river.

Pumps move water from the holding lake [Lago] to the water treatment plant located on Jarandilla Drive. From the treatment plant water is distributed to the Village via a

network of water storage tanks and water pipes. The water treatment plant was updated in 2014 from a capacity of 4 million gallons daily to 6 million gallons daily, with the ability to expand to 9 mgd, which is the projected need in 2050.

Wastewater:

The POA operates two wastewater treatment plants.

#1, Mill Creek Waste Water Treatment Plant is located on Cortez Road just past Lake Cortez and is in the Middle Fork of the Saline River drainage basin. The volume through the plant averages .5 mgd, and has the capacity to handle 1 mgd.

#2, Cedar Creek Wastewater Treatment Plant is located on Ponce de Leon Drive below the Balboa dam and is in the South Fork of the Saline River drainage basin. The volume through the plant averages .5 mgd, and has the capacity to handle 1 mgd.

The two treatment plants are permitted through 2015 and process water which meets all current standards. Water quality information and water treatment volume information is available from the Public Works Department of the POA. .

Recreational Water:

The Village maintains the recreational lakes for the use and enjoyment of all members and as reservoirs for irrigation of golf courses. Lakeshore residents have riparian rights to the lake water and are permitted to water their lawns with water from the lakes.

Lake Desoto, 200 acres and supplies irrigation water for the DeSoto golf course.

Lake Cortez, 245 acres, is not used as a water source for any golf course. Water from Lake Cortez flows into the Middle Fork via Mill Creek. Planned releases from Lake Cortez, along with the discharge flow of processed water from the Mill Creek wastewater treatment plant, provide adequate flow in Mill Creek. The Cortez golf course is irrigated from an artesian spring located on the course.

Lake Pineda, 63 acres, is not used for golf course irrigation. This lake receives water from Cedar Creek and overflows into Lake Coronado.

Lake Coronado, 380 acres, water is used to irrigate the Coronado golf course and fill ponds on the Balboa golf course. It overflows into Lake Balboa.

Lake Balboa, 944 acres, water is pumped to Ponce and Balboa golf courses and, by siphon, fills the Magellan pond. As a source of golf course water Balboa is sufficient to cover a sustained drought (120 days) with a temporary lowering of the lake level of about 4 feet. Balboa Lake then overflows into the South Fork of the Saline River via Cedar creek. This overflow also supplements the processed water released from the Cedar Creek Wastewater Treatment Plant.

Magellan Pond, 5 acres, receives water from Lake Balboa via a siphon system and can receive water from a pumping system downstream from the Cedar Creek processed water

outlet. Magellan pond is used to irrigate Magellan golf course and to fill Lake Isabella, which is used to irrigate most of Isabella golf course.

Lake Granada, 52 acres, The Diamante pumping station located on the Middle Fork of the Saline River below Mill Creek sends water to Diamante Country Club (non POA) and to Lake Granada. Lake Granada then is used to irrigate most of Granada golf course.

Lake Sofia, 38 acres, irrigates nine-hole of the Isabella golf course.

Lakes Estrella (22 acres), Lake Segovia (11 acres), and Lake Maria (27 acres) are residential/recreational in nature. The remaining smaller lakes and ponds are golf course design/residential.

Lake Level Changes are the result of several factors including evaporation, golf course irrigation, residential irrigation, seepage, and planned releases. The National Oceanic and Atmospheric Administration through the National Weather Service has studied evaporation across the U.S. for many years. The closest site to us is at the Lake Ouachita dam where evaporation records have been kept for 24 years. This study shows that lakes in our area will lose approximately 6” of surface water to evaporation per month in June, July and August. When you consider the period of May through September the total loss is about 28”.

The 2nd most significant loss is golf course irrigation. As an example, with Balboa being 944 acres, approximately 2 ½” of surface water will irrigate a golf course for a full season. If Balboa irrigates four courses, that is about 10” of surface water per year, almost all of which is withdrawn in the hot summer months.

Lake Maintenance:

The Public Works Department in consultation with The Lakes Committee is lowering Village lakes two to four feet to permit property owners to maintain their shoreline and to allow dredging of sediment which impedes navigation. The Village lakes are lowered on a rotating basis approximately every five years.

#2- Hot Springs Village Water Issues,

The Middle Fork of the Saline River is designated as an Extraordinary Resource Water by the Arkansas Department of Environmental Quality (ADEQ) which provided it with the highest level of protection in the state. This designation means that ADEQ protects the river through (1) water quality controls, (2) maintenance of natural flow regime, (3) protection of in-stream habitat, and (4) encouragement of land management practices protective of the watershed. The Arkansas Natural Resources Commission has responsibility for the regulation of the withdrawal of water from the river.

In the early 2000’s some area residents had expressed concern about the environmental future of the Middle Fork and South Fork of the Saline River. Bank erosion, water flow, and water quality were the main concerns of these groups. The Alliance for an Improved

Middle Fork (AIM), and Environmental Community Heritage Objective (ECHO) were groups formed to explore these issues, voice concerns, and propose and implement solutions. The POA and many concerned Villagers joined the Alliance for an Improved Middle Fork (AIM) to assist in protecting the river and getting the message out that the Village is also concerned about these issues. For several years there were U.S. Geological Survey (USGS) gauges on the Middle Fork which constantly monitored water flow and quality. These were paid for by USGS and Hot Springs Village. At this time the gauges are not operating and AIM has become inactive as the concern by the residents has subsided.

The Middle Fork was studied by many organizations in the early 2000's. One of the last was an extensive study of the effects of increased urbanization in the watershed performed by USGS in cooperation with the Arkansas Natural Resources Commission, and the U.S. Department of Agriculture-Natural Resources Conservation Service-National Water Management Center. This study was performed to help address concerns raised by local residents, State, and Federal agencies about the current geomorphic conditions of the Middle Fork. The study looked at the geometric characteristics of the Middle Fork versus the standard for Ouachita mountain streams. The study found only minor differences and reached no conclusion as to the cause. The Middle Fork and South Fork both meet all water quality standards as established by the Environmental Protection Agency and Arkansas Department of Environmental Quality.

Governmental agencies and environmental groups continue to periodically study the Saline River system. There is the possibility that at some point in the future water withdrawals from the Middle Fork could be restricted. These rules would not affect the Villages withdrawal of potable water because (1. we have preexisting enforceable riparian rights to potable water and (2. this water is only withdrawn from the river at periods of high flow. The recreational water withdrawn at the Diamante pumping station which supplies recreational water to the Diamante Country Club (non POA), Granada Golf course and Lake Granada also is protected by riparian rights but with a lower priority than were it used as potable water. If overly stringent standards were imposed, irrigation water for these golf courses would have to be provided by other sources within the Village. At this time there is no active discussion regarding minimum flow.

Potable Water:

The HSV potable water supply system is adequate for a "built out" Village provided that (1) there is no interruption of our riparian rights to water from the Middle Fork, (2) there is no prolonged drought that would prohibit water being withdrawn from the Middle Fork, and (3) there is no contamination of the river from upstream residents or industry. The projected demand in 2050 is 9 mgd and the safe yield of the Middle Fork, based upon data from Garver Engineers in 1996, is 14 mgd. Lake Lago has sufficient storage capacity to handle this volume.

The two pumps were upgraded in 2005 to move 7 mgd to Lake Lago. There is currently no alternative plan in place for a water supply other than the Middle Fork River.

Alternatives are being considered such as participation in a pipeline to Lake Ouachita.

The Hot Springs Village POA joined the Mid-Arkansas Water Alliance when it was formed in 2003. It consists of 26 water systems in mid- Arkansas for the purpose of requesting water allocations from U.S. Army Corps of engineers' area lakes. The charge of the Alliance is to identify and secure the additional water needs for its customers for the next 50 years.

#3- Water in the Future

The Villages use of the water resource will be increasingly reviewed by outside entities in the future. Access to water for both potable and recreational uses will always be an issue as will water treatment standards and the effective use of treated water. The Village is not alone in facing these potential problems .We need to stay current on external technological, legal and political developments which could have impact on our water usage. We also need to continue to work with governmental agencies and our fellow concerned citizens to use our water resource responsibly.

#4 – Water Conservation Measures During Drought Conditions.

- **Do Not Over Water Lawn**
One inch per week is sufficient.
- **Be Water Wise**
Watering during the night or early in the morning minimizes evaporation.
Water the grass, not the street.
- **Be Weather wise**
Don't water on rainy days.
- **Be Grass Wise**
Keep grass 2" to 3" high as this provides shade for roots, requires less watering and mowing, and allows roots to grow deeper and be more water efficient.
- **Be Equipment Wise**
Use sprinklers that spray low, large drops - not a high fine spray (less evaporation).
- **Be Soil Wise**
Loose soil absorbs more - tight soil promotes runoff.
- **Vehicle Washing**
Wet vehicle, turn off water, and use bucket with soapy water and sponge to wash vehicle, turn water on, and rinse off vehicle.

IF YOU KNOW YOU HAVE A WATER LEAK - GET IT FIXED!

The Lakes Committee will assume responsibility for updating this document when significant events occur.