



GOLDENWOOD WEST WATER SUPPLY CORPORATION

C/O Professional General Management Services, Inc,
26550 Ranch Road 12, Suite 1
Dripping Springs, TX 78620

In preparation for tonight's meeting (POA pavilion, 7:00 pm) of the Goldenwood West Water Supply Corporation ("GWWSC") Board of Directors (BOD), the Drought/Emergency Management Committee thought that it would be useful to provide everyone in the neighborhood some data about our water supply system and the drought in general. We've also included some useful links where you may find even more information about the current and projected impacts to our local and state-wide water supply and what measures some water systems have implemented in response. The additional measures that may need to be implemented in our neighborhood will be discussed at the meeting.

1. How much water did we use in August?

Based on the meter readings during the first weeks of August and September, we used 1,494,690 gallons of water at our homes and the common areas operated by the Property Owners' Association during the past month. We flushed about 4,500 gallons of water from the standpipes at the ends of our distribution lines; and we repaired two leaks from which an estimated 1,500 gallons of water were lost. Our unaccounted for water loss from the system is estimated at about 4.3 percent this past month, which equates to approximately 60,000 gallons.

2. How much water does the Hays Trinity Groundwater Conservation District say we can use system-wide?

That question's not as easy to answer as you might think because the Hays Trinity Groundwater Conservation District ("HTGCD", www.haysgroundwater.com), from which we obtained our groundwater permit, does not have formal rules regarding the benchmarks that we should be using to quantify our water conservation measures. What we do know is that HTGCD mandated a 30% reduction in water use for permittees such as GWWSC that went into effect on August 1, 2011 (Order No. 150, http://haysgroundwater.com/files/Orders/150_Order_CriticalStageDrought.pdf).

However, HTGCD did not define from what number that 30% reduction should be measured. The most recent written guidance to GWWSC was provided in a letter from HTGCD in 2009. That letter provided a table in which our permitted annual water use rate (60 acre-feet) was distributed over a 12-month period based on typical seasonal water usage rates. That table suggests that we should have used no more than about 1.55 million gallons of water in August, and that we should use no more than 1.26 million gallons of water in September. **Whew, looks like we did it, right? Well, maybe, but keep reading.** When Order No. 150 was issued, HTGCD staff suggested that an appropriate benchmark from which the 30% reduction target should be measured would be our 2010 water usage during the corresponding month. In August 2010, we used approximately 1.8 million gallons. Using that benchmark, some would

say that we should have used no more than about 1.26 million gallons of water in August and that we should use even less in September.

3. How does your water use compare to your neighbors'?

Hmmm, this is where it gets interesting...take a look at the table below.

NEIGHBORHOOD WATER USE IN AUGUST 2011

Usage Group (gallons)	Accounts/ Connections	Water Used by Group (gallons)
Zero Usage	1	0
0 - 999	3	2,020
1,000 - 1,999	2	2,990
2,000 - 2,999	9	23,810
3,000 - 3,999	14	50,220
4,000 - 4,999	14	64,060
5,000 - 5,999	18	99,090
6,000 - 6,999	7	45,900
7,000 - 7,999	6	45,040
8,000 - 8,999	7	57,970
9,000 - 9,999	6	56,510
10,000 - 10,999	12	125,880
11,000 - 11,999	3	35,350
12,000 - 12,999	6	74,490
13,000 - 13,999	5	67,100
14,000 - 14,999	5	72,000
15,000 - 15,999	3	46,600
16,000 - 16,999	2	33,210
17,000 - 17,999	4	70,870
18,000 - 18,999	0	0
19,000 - 19,999	3	58,080
20,000 - 20,999	4	81,350
21,000 - 21,999	1	21,570
22,000 - 22,999	1	22,260
23,000 - 23,999	2	47,610
24,000 - 24,999	1	24,080
25,000 - 25,999	1	25,210
26,000 - 26,999	1	26,080
27,000 - 27,999	0	0
28,000 - 28,999	1	28,010
29,000 - 29,999	0	0
30,000 - 30,999	2	60,390
31,000 - 31,999	1	31,950
32,000 - 38,999	0	0
39,000 - 39,999	1	39,900

Usage Group (gallons)	Accounts/ Connections	Water Used by Group (gallons)
40,000 - 54,999	0	0
55,000 - 55,999	1	55,090
SYSTEM TOTALS	147	1,494,690

As you can see, of the 146 active connections, half (73) used less than 8,000 gallons of water each last month and more than 2/3 of the active connections (101) used less than 12,000 gallons each. In case you're wondering, most of those connections on the very low end of the scale (1,000 to 3,000 gallons) do serve households where people are actually living right now.

Take a look at your water bill for August. **Where do you fall on this table?** In the context of the Emergency Stage Drought we're in, **do you think that the amount that you're using is fair to your neighbors? What would they think?** These are just some thoughts for each of you to ponder. If you're so inclined, come to the meeting Monday night and tell us what you think.

4. How much water should each of us be using?

This is another tough question with no single right answer. If we assume that the 1.55 million-gallon target set by HTGCD in 2009 is the right place to start, one way to calculate the answer would be to divide 1.55 million gallons by 146 active connections, which would give us about 10,270 gallons per connection in August. For September, this would equate to 8,630 gallons per connection. However, when we're talking about essential needs, we need to take into account the number of residents at each connection. If we assume an average of 2.2 residents per household and take the POA pool out of the equation, we could estimate that there are about 320 residents in our neighborhood. Then, if we divide the 1.55 million gallon target for August by 320 residents, we would get about 4800 gallons per resident. Similarly, the September target using this method would be about 3900 gallons per resident. **Taking these numbers into consideration, how does your water use look now?** If you lived in a household of 3 and you used around 5,000 gallons of water (or less) last month, you'd probably think that you were doing pretty good, and that maybe there are some other folks in the neighborhood who need to try a little harder, wouldn't you?

One thing that should be clear from all of this data is that some folks can and do get by on 1,000 to 2,000 gallons per month each if they only use water for their essential needs (cooking, drinking, bathing, etc.).

The "Handbook for Drought Contingency Planning for Retail Public Water Supplies" (Texas Commission on Environmental Quality, RG-424, April 2005) suggests the following water allocation rates in the event of water shortage conditions that threaten public health, safety and welfare:

Persons per Household	Gallons per Month
1 or 2	6,000
3 or 4	7,000
5 or 6	8,000
7 or 8	9,000
9 or 10	10,000
11 or more	12,000

5. What do all of these benchmark and target numbers that are thrown up there really mean to us right now?

The short answer is: **ABSOLUTELY NOTHING IF THERE'S NOT ENOUGH GROUNDWATER TO PUMP WITHIN THE RADIUS OF INFLUENCE OF OUR WELL SYSTEM.**

With the exception of the data in the table that summarizes the amount of water actually used last month, all of these numbers are just paper targets based on somebody's understanding of the regional hydrogeology and a guesstimate of how much groundwater is actually available within the District for everybody's use. There are no fancy, schmancy hydrogeologic models that can tell us beyond a doubt exactly how much water is available to us today, tomorrow, next week, or next month. There are simply too many variables to consider. For example, the aquifer from which we obtain our groundwater, the Trinity Aquifer, extends north and south throughout a good portion of the state. Additionally, the Trinity Aquifer is typically discussed in terms of three vertically separated geologic strata, the Upper, Middle and Lower Trinity which may or may not be present at any particular location. Nobody really knows how many wells are drawing how much water out of which parts of the aquifer because private residential and agricultural wells are not required to be permitted. Additionally, unless somebody has a crystal ball, we cannot predict exactly when it's going to rain, how much rainfall we'll get, and how much of that will actually infiltrate down to and replenish the aquifer.

That's not to say that the numbers are not based on scientific data and that they have no use – they are and they do. They just don't provide to us the whole picture, and they certainly don't tell us the single-most thing that we all really want to know: ***How much water can we regularly pump out of our wells without depleting the supply?*** HTGCD and regulatory agencies state-wide constantly struggle with this, and they are constantly updating their models and plans. Refer to the 2005 final and 2011 draft HTCGD Groundwater Management Plans and the 2011 draft Groundwater Availability Model on the HTCGD website (<http://haysgroundwater.com/regulatory>) for additional information.

6. So what is going on with our wells?

First, a little background: The GWWSC owns four wells. One of these wells has been permanently plugged and abandoned (Well 1); one well is inactive and would require a significant amount of work and investment to return to use (Well 2); and two wells are

currently in use (Wells 3 and 4). Well 3, which is located in the pasture behind the water treatment system fence, is considered to be a GUI (Groundwater Under the Influence of surface water) well. This designation came about due to the detection of bacteria in the well water some time ago, and is the reason that the GWWSC installed the water filtration system that we currently utilize. Generally, the quality of water in Well 3 is considered to be better by most folks because it tends to have lower concentrations of iron and other minerals and is less discolored as compared to Well 4. However, Well 3 is much more susceptible to fluctuations in rainfall because the water levels are more directly impacted by recharge from surface water runoff in the immediate vicinity. Well 4 is located inside the water treatment system fence and is our “workhorse.” All of the water we are currently using and most of the water we have used in the past few months has been pumped from Well 4. Here are some basic well statistics:

Item	Well 3	Well 4
Installation Date	1986	1997
Total Depth (feet bgs)	720 ⁽¹⁾	⁽²⁾
Perforated Screen Interval (feet bgs)	420 - 620	? ⁽²⁾ – 540
Pump Depth (feet bgs)	670	540
Estimated Pumping Rate When Installed (gpm)	150	180
Current Estimated Pumping Rate (gpm)	<80	110
Static Water Level (feet bgs)		
8/11/09	448	478
8/20/09 (lowest recorded level in 2009)		483
1/5/10	106	341
6/25/10	88	330
1/24/11	199	296
2/26/11	238	290
3/31/11	399	295
4/13/11	348	329
5/9/11	273	368
6/2/11		386
6/28/11	290	414
6/29/11	458	
7/13/11	336	418
7/28/11	320	442
8/2/11		448
8/23/11	322	455
9/7/11	327	462

bgs: below ground surface

gpm: gallons per minute

⁽¹⁾The well log indicates that the boring was originally drilled to approx. 1050 feet bgs; however, the boring was plugged back up and the well was installed to a total depth of 720 feet bgs.

⁽²⁾The well log indicates that the boring was originally drilled to approx. 800 feet bgs; however, no casing appears to have been set below 540 feet bgs.

Based on this data, it would appear that Well 3 has more water in it than Well 4 and, in fact, there is more water sitting in the casing when the wells are not being pumped. However, over the past few months we have found that each time we pump from Well 3, the water draws down quickly and trips the pump off – the pumps automatically shut off when they are not submerged. Once tripped off, it has taken as long as 3 days for the water levels in Well 3 to recover from a single short pumping period. Thus, it appears that the radius of influence of Well 3 (the lateral area from which the well can actually pull water) is relatively limited and the rate of recharge to the area within that radius is very slow and that we cannot rely on Well 3 to provide a sustainable supply of water for our use although we can use it from time to time to supplement our supply. As of September 7, the static water level in Well 4 was only 78 feet above the pump level. The data also indicate that the static water level in Well 4 has dropped at a rate of 7 feet every two weeks for the past month. If that trend continues, the static water level in Well 4 could reach the pump level within a few months. When that happens, we may be unable to produce any water out of Well 4 as it is currently configured.

HTGCD monitors groundwater levels in a residential well located in the Goldenwood subdivision. This well data can be viewed at <http://haysgroundwater.com/wellgraph?idWell=1303>.

Maps of other wells within the district and links to the data reported for those wells is available at <http://haysgroundwater.com/monitored-wells-data>.

7. What's going on with the drought?

Unlike the 2009 drought, which broke shortly after we reached the lowest levels in our water wells, most meteorologists and climatologists have indicated that they expect the current drought to continue for at least a few more months and some have suggested that it may continue until August 2012. Drought information provided by the Texas Commission on Environmental Quality (TCEQ), LCRA, the State Climatologist's Office, and the Texas Water Development Board can be reviewed at these links:

<http://www.tceq.texas.gov/response/drought>,
<http://www.lcra.org/water/drought/index.html>,
<http://atmo.tamu.edu/osc/>, and
<http://www.twdb.state.tx.us/DATA/DROUGHT/index.asp>.

A useful compilation of drought-related information is also provided on the Hill Country Alliance website at <http://www.hillcountryalliance.org/HCA/Drought>.

In short, since the drought is state-wide, it does not appear that the aquifer from which we obtain our water supply will be receiving any meaningful surface water recharge any time soon.

8. What types of restrictions are other water supply systems implementing?

The measures in place vary from location to location, and to some extent are dependent upon the source from which the water is obtained (surface water, groundwater, which

aquifer, etc.). For example, systems that receive water from LCRA are subject to the LCRA's drought contingency plan(s) and restrictions; City of Austin residents are subject to the City's plans and restrictions; municipalities such as the City of Llano that draw their raw water supply directly from a river are subject to restrictions imposed by the TCEQ; and we in Goldenwood West are subject to the restrictions imposed by HTGCD and the GWWSC drought contingency plan. Information regarding the restrictions imposed by some of the entities within Central Texas and elsewhere in the state may be found at the following websites:

<http://www.tceq.texas.gov/response/drought/drought.html>
<http://www.lcra.org/water/utilities/restrictions.html>
<http://www.ci.austin.tx.us/water/conservation/>
<http://drippingspringswater.com/>
http://www.wimberleywatersupplycorp.com/Notices_Agenda_News.html
<http://www.cityofkyle.com/utilitybilling/water-use-restriction-information>
<http://www.bseacd.org/>

9. What, if any, additional water use restrictions will GWWSC impose on us?

This has been a huge topic of discussion recently and will be discussed in great detail at tonight's meeting. Any additional restrictions that are imposed must and will be rolled out in accordance with our drought contingency plan and must take into consideration the rapidly declining water levels measured in our supply wells. Some topics that will be discussed include the use of GWWSC water to top off swimming pools (incidentally, there are approximately 15 swimming pools in our neighborhood); additional watering restrictions; the potential need to set monthly caps for households and whether or not those caps should be based on the number of occupants; how restrictions should and can be enforced; and what, if any, penalties can and should be imposed for violations of the restrictions, etc.

We understand that this is a difficult time and that the imposition of water use restrictions is, at the very least, inconvenient. We need and are asking for everyone's cooperation and constructive input so that we may arrive at a solution that is fair and equitable to all of our residents.

Regards,

Polly Mayfield Johnson, P.E.
Chairman, Drought/Emergency Planning Committee