EPIC ENGINEERING, P.C.

Civil Municipal Project Management Water Resources

2880 West 4700 South, Suite D
Salt Lake City, Utah 84118

August 31, 2004

Mr. Dave Gardner
Draper Irrigation Company
12421 South 800 East
Draper, UT 84020

Subject: Culinary Water System - Water Storage Requirements

Dear Dave;

The following is a summary of the water storage capacity of Draper Irrigation Company=s (Company) culinary water system and assessment of the adequacy of said storage. The Company assessed the adequacy of its water storage volume in the 2002 Culinary Water System Master Plan. The documented storage volume was 12,370,000 gallons. This storage volume was adequate at that date but would be approximately 5 million gallons short by 2010 and over 7 million gallons short in 2020. As a result of this assessment, the Company increased the volume of the planned 5 million gallon reservoir at its water treatment plant to 7 million gallons. The Company has also constructed a 750,000 gallon reservoir, bringing the current total storage to 15,120,000 gallons. A list of the water storage reservoirs is shown below.

TABLE 1
Existing Company Storage Tanks

Tank Description	Tank Location	Storage Capacity (Gallons)
Northeast Bench Tank (WTP)	11600 South 2700 East	1,000,000
Southeast Bench Tank	13800 South 1100 East	500,000*
Cove of Bear Canyon Sub. Tank	12300 South 3000 East	250,000
South Mountain Tank	13800 South 1300 East	3,000,000
Centennial Tank (10% of tank)	15400 South 300 East	120,000
Traverse Ridge Road Tank	700 East Traverse Ridge Road	3,000,000
Treatment Plant Tank	11600 South 2700 East	7,000,000
Little Valley Tank	900 East Traverse Ridge Road	750,000
Total Storage		15,120,000

*The South Bench Tank does not contribute to the System storage capacity.

Utah State Drinking water rules require that the Company supply enough water storage to provide for peak day

demands for indoor and outdoor usage, and fire suppression volume and for emergencies. The required storage has been sized with the capacity to provide one peak month average day indoor and outdoor demand along with a fire flow storage of 4,500 gpm for two hours and 20 percent operating reserve for emergencies. The indoor and outdoor storage is calculated based upon the assessed average daily unit water usage of 758 gallons per connection and a peaking factor of 2.24 for peak month daily usage, for a unit usage of 1,697.92 gallons per connection. This usage is multiplied by the number of connections to get the peak month average daily usage. The required storage for 2005, 2010, 2015 and 2020 are shown in the Table below.

TABLE 2
Water Storage Requirements

	2003*	2005	2010	2015	2020
Number of Connections	6,160	6,791	8,668	9,361	10,109
Peak Month Daily Usage	1697.92	1697.92	1697.92	1697.92	1697.92
Storage (gallons)					
Equalization Storage	10,459,187	11,530,575	14,717,570	15,894,229	17,164,273
Fire Suppression Storage	540,000	540,000	540,000	540,000	540,000
Emergency Storage	2,181,837	2,414,115	3,051,514	3,286,846	3,540,855
Total Required Storage	13,091,024	14,484,690	18,309,084	19,731,075	21,245,128
Existing Storage	15,120,000	15,120,000	15,120,000	15,120,000	15,120,000
Surplus(Shortfall)	**2,028,976**	**635,310**	**(3,189,084)**	**(4,611,075)**	**(6,125,128)**

*Last year on record in our office

According to Table 2 above, the Company has, and will continue to have, adequate storage beyond the year 2005. By the year 2010 the existing storage will have a shortfall approximately equal to the amount of emergency storage. The amount of emergency storage required is usually determined by the water supplier based upon an assessment of risk and the desired degree of system dependability. The 20 percent extra emergency storage is a larger than usual value in assessing the risk of volume loss for an entire system but the Company desires the flexibility afforded with such extra storage. Such flexibility will allow the Company to maintain adequate storage through the year 2010.

The Company has Master Planned to construct a 5 million gallon reservoir around the year 2010 and an additional 5 million gallon reservoir before the year 2020. With this storage the Company should have adequate storage throughout buildout. We hope that this information will be of assistance to the Irrigation Company. If you have any questions, please contact our office.

Sincerely,
EPIC ENGINEERING, P.C.

Stephen Marks, P.E.

Assistant Company Engineer