

Emails Week of August 4, 2008

From: cstampingr@dakotacom.net
To: [Scott D. Egan](mailto:Scott.D.Egan)
Sent: Monday, August 04, 2008 10:49 AM
Subject: Re: Graywater

Scott-the waste waters from Las Vegas and Henderson are returned to Lake Mead from which the Colorado River flows past Davis Dam and Toprock, AZ to the CAP intake in the vicinity of Lake Havasu and thence to Tucson.

Tucson does not drink pure Las Vegas waste water but Tucson's CAP contains their waste water(diluted) and the Tucson Water CAP blend contains their waste water(further diluted).

Perchlorate monitoring results from Henderson can be found, "Perchlorate Monitoring Results Henderson to the lower--(Ref:ndep.NV.gov/BCA/file/perchlorate).

The CAP Canal Water Quality report for the San Xavier Pumping Plant 2006 cites a May monitoring result of 2.3 ug/L of Perchlorate. In Lake Mead female fish are becoming male due to perchlorate, etc.

--clyde

----- Original Message -----

From: [Scott D. Egan](mailto:Scott.D.Egan)
To: cstampingr@dakotacom.net
Sent: Monday, August 04, 2008 9:41 AM
Subject: RE: Graywater

Thank you for contacting the District 4 Office of Supervisor Ray Carroll. I will be sure that he sees your message as soon as possible. You have obviously done much research on this issue. There is one statement you made, however, which I do not believe is accurate: "The citizens of Tucson are drinking their waste water" which is not presently the case.

Thank you again,

Scott Egan

Executive Assistant to Ray Carroll

District 4

From: cstampingr@dakotacom.net [mailto:cstampingr@dakotacom.net]
Sent: Sunday, August 03, 2008 12:09 PM
To: District4
Subject: Fw: Graywater

----- Original Message -----

From: cstampingr@dakotacom.net
To: mcweb@tucsonaz.gov
Sent: Sunday, August 03, 2008 11:39 AM
Subject: Graywater

Honorable Mayor and Council Members,

By the year 2025, and thereafter except for outstanding water credits, the annual withdrawal of water from an aquifer may not exceed the annual recharge. The annual natural recharge of the Tucson Basin is 66,000 acre-ft per year (Ref: Water Resources in the Tucson Basin,

ag.arizona.edu/SWES/tucson). Based on the 2000-2002 average annual storage increase of 35,000 acre-ft per year (Ref: Groundwater Users Advisory Council minutes, Tucson Active Management Area, Dec 7, 2004), the Avra Valley natural groundwater recharge is 17,500 acre-ft per year. The total possible available groundwater annually, based on 2008 water resources, is equal to:

$66,000 \text{ acre-ft/yr} + 17,500 \text{ acre-ft/yr} = 83,500 \text{ acre-ft/yr}$
plus the CAP allotment of 135,000 acre-ft/yr (possibly 144,000 acre-ft/yr) gives a total of:
 $83,500 \text{ acre-ft/yr} + 135,000 \text{ acre-ft/yr} = 218,500 \text{ acre-ft/yr}$.

This is Tucson Water's total annual user available water total in acre-ft/yr (unless other water sources are obtained). Sustainability involves keeping the 218,500 acre-ft per year available for use.

Evaporation is the primary concern affecting the increase or decrease of the total cited, supra. Rainwater harvesting and collected water from air conditioning units can increase the total acre-ft/yr cited, supra. Graywater reuse will reduce the total available acre-ft/yr.

Graywater is discharged only in areas where there is at least five feet between the point of discharge and the ground water table to protect ground water resources from possible contamination (Ref. Gray Water Irrigation Guide, Mar 19, 2003, nmenv.state.nm.US/OOTS/Gray%Water%20Irrigation%20Guide1). In 1971 on the Eckard College Campus, under the auspices of a Doctorate in Microbiology, funded by Florida Power Corporation, and witnessed by the undersigned, viable virus traveled through 14 feet of sloping earth in a period of two weeks (albeit their number was greatly reduced).

The proposed Tucson Graywater reuse Code endorses a possible maximum residential graywater production to Evapotranspiration which is:

Evapotranspiration=transpiration+evaporation
=flora leaf evaporation+ground evaporation
=total evaporation
=total residence graywater

which is a loss from the 218,500 acre-ft/yr

Should all new residential home owners avail themselves of Tucson's graywater incentives, follow city employee graywater promotional efforts, and install graywater reuse systems, the loss of water is determined as follows:

Population served by Tucson Water in 2008 was 750,000 (Ref: extrapolated from Fig. 2.3, 2008 Update to Water Plan: 2000-2050, Tucson Water Dept.). Estimated Long Range Planning population to be served in 2030 is 1,405,799 (Ref: Water Plan 2000-2050, Tucson Water). The increase in population between 2008 and 2030 is equal to 655,799. The average size family is three persons (Ref: Census 2000, Demographic Profile highlights) and
 $(655,799 \text{ persons}) / (3 \text{ individuals/household}) = 218,600 \text{ households}$

The amount of daily graywater per household equals 118 gal/household/day (Ref: Water Resources Availability for the Tucson Metropolitan Area, barbaralasky.com/tucson-water) and
 $(118 \text{ gal/household/day}) \times 218,600 \text{ households} = 25,794,800 \text{ gal graywater/day}$ and
 $25,794,800 \text{ gal/day} \times 365 \text{ day/yr} = 9,415,102 \text{ million gal/yr}$ and
 $(9,415,102 \text{ million gal/yr}) / (325,851 \text{ gal/acre-ft}) = 28,890 \text{ acre-ft/yr}$ loss of water to atmosphere.

Repeating the computations for Tucson Water Service Area long range planning population of 1,483,649 in 2050 results in a 32,320 acre-ft/yr loss of water which is 14.79 % of total available.

The total available water in 2025 of 218,500 acre-ft/yr is a constant: the graywater annual water loss is a variable related to the increase of residences installing graywater systems.

There are mitigating solutions other than plumbing involving responsibility and accountability. What scientific evidence does the City of Tucson/Pima County have for the avoidance of all known best method disinfection technology for wastewater prior to recharge which San Diego and Los Angeles are considering?

Las Vegas and Henderson, Nev. are sending disinfected wastewater back into Lake Mead from whence it came. The citizens of Tucson are drinking their waste water. Thanks to Prop. 200 and the citizens of Tucson, CAP water is recharged-no thanks to Tucson Water Dept.

Respectfully, Clyde H Stagner, a Tucson citizen