Chandler Heights Citrus Irrigation District
Annual Water Quality Report
For
Calendar Year 2007

What's in your water?
This is the report where we let you know. All public water systems are required to report to the public every year about drinking water quality. We perform hundreds of tests each year, under guidelines set up by the U.S. Environmental Protection Agency (EPA) and Arizona Department of Environmental Quality (ADEQ). This report summarizes those test reports and provides you with additional information about CHCID drinking water and water operations.

CHCID water met or exceeded all of the EPA and ADEQ standards for drinking water during 2007, and the District continues to be vigilant about land use changes and Arizona water issues in order to anticipate any changes that could affect our drinking water quality or quantity in the future.

Where does your water come from?
CHCID drinking water comes from wells located within the district. The water table is about 300 feet below the surface and has remained stable throughout our 12 year drought. We draw our water from a large aquifer system that is underneath all the communities in the East Valley

From the wells our water goes to the treatment plant on Valencia where the District office is located. The water is chlorinated and goes into two storage tanks. From the tanks it goes through a pump house before entering the pipes that bring it to your home.

Disinfection of your drinking water is done with chlorine. The chlorine level in the water sent out to your home is maintained at 0.50 -0.65 ppm. The pressure in the system is 60-70 psi.

What's in the water besides water?
A contaminant is anything that is in the water besides water. All drinking water contains small amounts of contaminants. The presence of contaminants does not mean there is a health risk. The EPA sets limits on contaminants for public water systems to ensure the water is safe to drink. More information about contaminants in tap water and potential health effects can be obtained by called the EPA's Safe Drinking Water Hotline at 1-800-426-4719.

Microbial contaminants, such as viruses and bacteria, usually come from septic systems, sewage treatment plants, agricultural livestock, and wildlife.

Inorganic contaminants, like salts and metals, can be naturally occurring or result from storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides come from agricultural and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, are byproducts of industrial processes and petroleum production, and can also come from gas stations, storm water runoff, and septic systems.

Radioactive contaminants are usually naturally occurring or can be the results of oil and gas production and mining activities.

Nitrates and arsenic are two contaminants we watch very carefully. In this area nitrates come mostly from septic systems and fertilizer, and arsenic is naturally occurring.

Do you need to take special precautions?
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV-AIDS or other immune system disorders, some elderly, and all infants, can be at higher risk. These people should seek advice about drinking water from their health care providers.

What do we test?
CHCID works to ensure water quality by performing numerous tests on a regular basis. Some tests we perform everyday. EPA and ADEQ set minimum frequency requirements for different tests, and they vary from monthly to every 3 years. The most common tests fall under the following categories:

Total Coliform Tests: Tests for coliform bacteria are performed at specific places throughout the system each month.

Chlorination: Chlorine is added to our water supply as a disinfectant. We test several times a week to ensure the chlorine level remains correct.

Inorganic Chemicals: For water sampling inorganic has become a miscellaneous category. Included in it are elements, such as arsenic and mercury; chemical compounds, such as nitrate and nitrite; and various other measurements used to determine drinking water quality. We test inorganics every 3 months to every 3 years.

All of the common tests for contaminants in water are reported in parts per million or parts per billion; an indication of how low the contaminant levels are in drinking water. If you would like more information about CHCID's water quality, or operations in general, please call us.

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Water Quality Data Table

The table below lists all the controlled drinking water contaminant tests that apply for calendar year 2007.

Substance	Highest Level Allowed (MCL)	Detected Range	Meets Standard	Major Sources of Contaminants
Nitrate	10 ppm	4.8 – 6.4 ppm	yes	Runoff from septic tanks, sewage, fertilizer, naturally occurring.
Lead	15 ppb	2 – 3 ppb	yes	Leaching from copper & lead pipes and household plumbing reacting with water.
Copper	1.3 ppm	0.01 – 0.06 ppm	yes	Leaching from copper & lead pipes and household plumbing reacting with water.
Haloacetic Acids	0.060 ppm	0.0016 ppm	yes	Byproduct of chlorine disinfection.
Trihalomethanes	0.080 ppm	0.011 ppm	yes	Byproduct of chlorine disinfection.
Chlorine	4.0 ppm	0.35 – 0.71 ppm	yes	Water additive used to control microbes.
Arsenic	10 ppb	6 - 9 ppb	yes	Mining, naturally occurring.
Barium	2.0 ppm	0.047 ppm	yes	Discharge of drilling wastes, discharge from metal refineries, naturally occurring.
Chromium	0.1 ppm	0.0039 ppm	yes	Discharge from steel and pulp mills, naturally occurring.
Fluoride	4.0 ppm	0.46 ppm	yes	Naturally occurring, discharge from

				fertilizer and aluminum factories. Also a water additive which promotes strong teeth.
Sodium	NA	130 ppm	NA	For information only.
pH	NA	7.7 – 7.9	NA	For information only.
Hardness	NA	175 ppm	NA	For information only. 130 ppm from calcium and 45 ppm from magnesium, as $CaCO_3$ equivalents.

In addition to the substances shown in the table above, the following substances were also tested for and found at such a low level that there are no useful numbers to report. Cadmium, mercury, selenium, antimony, beryllium, cyanide, nickel, thallium, 1,1-dichlorethelene, 1,1,1-trichlorethane, 1,1,2-trichlorethane, 1,2-dichlorethane, 1,2-dichlorpropane, benzene, carbon tetrachloride, cis-1,2-dichlorethane, ethylbenzene, (mono) chlorobenzene, 0-dichlorobenzene, para-dichlorobenzene, styrene, tetrachloroethylene, toluene, trans-1,2-dichloroethylene, trichloroethylene, vinyl chloride, xylenes, 1,2,4-trichlorobenzene, dichloromethane.

MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water.
ppm: Parts per million or milligrams per liter (mg/l)
ppb: Parts per billion or micrograms per liter (μg/l)

VIOLATIONS: CHCID had several violations for missed or incorrectly done monitoring in 2007, and some from previous years that were recognized in 2007. Monitoring violations are signs of unprofessional behavior and are not acceptable. The District made changes in the middle of 2007 to eliminate the cause of these mistakes, and there have been no violations since that time.

Arizona Administrative Code R18-4-105. Public Notification Requirements (Effective May 6, 2002)
Section F-3-iii, A CWS may use the CCR as a vehicle for the initial Non-acute Level 2 (12 month) public notice and all required repeat public notices, as long as the timing, content, and distribution requirements of this subsection are met.

Every month the District collects samples of drinking water that are tested for bacteria. The test performed looks for total (all kinds of) coliform bacteria. In February, 2007 CHCID collected only one total coliform sample for testing. The District should have collected three samples from different parts of the District. In April, 2007 the District did not collect any total coliform samples for testing. The District should have collected three samples from different parts of the District.

Arizona Administrative Code R18-4-202. Total Coliform; MCLs and Monitoring Requirements
E. Except as provided by subsection (G), a public water system shall conduct monthly monitoring to determine compliance with the MCLs for total coliform. ... A groundwater system that serves 4,900 persons or less may collect all required routine samples on a single day if the samples are taken from different sampling sites.
F. The number of samples taken for total coliform is based on the population served by a public water system. A public water system shall take the following minimum number of samples per month:

Population served	**Minimum Number of Samples per Month**
2,501 to 3,300	3

Also in April, 2007, the District should have measured the chlorine level in the water at three or more points around the District and failed to perform that test.

Arizona Administrative Code R18-4-214.01. Disinfectant Residuals and Disinfection Byproducts

J. Monitoring requirements for disinfectant residuals.

1. Chlorine and chloramines. A CWS or NTNCWS that uses chlorine or chloramines shall measure the residual disinfectant level in the distribution system when total coliforms are sampled as required in R18-4-303(C)(3). The Department shall not reduce monitoring for chlorine or chloramines.

Copper and lead tests were not performed in 2006 as scheduled. This was reported in the 2006 Consumer Confidence Report. During 2007 copper and lead make up samples were collected from 20 homes in the District and submitted for testing. The results were good, and are shown in the table above.

Arizona Administrative Code R18-4-310. Lead and Copper; Tap Water Monitoring

G. A small or medium water system that does not exceed the action level for lead and the action level for copper for three consecutive years of monitoring may further reduce the frequency of tap water monitoring for lead and copper to once every three years. The small or medium water system that conducts reduced monitoring shall use the reduced number of sites and follow the sampling requirements listed in subsection (I).

I. A public water system that samples annually or less frequently shall conduct tap water monitoring for lead and copper during the months of June, July, August, or September in the same calendar year. ... A reduced monitoring site shall be representative of the sites required for standard monitoring identified in R18-4-309. The Department may specify sampling locations when a public water system is conducting reduced monitoring. A public water system that conducts reduced monitoring shall collect at least one sample from the following number of sites:

System Size (Number of Persons Served)	**Number of Sites**
More than 100,000	50
10,001 - 100,000	30
3,301 - 10,000	20
501 - 3,300	10
101 - 500	5
100 or less	5

A relatively new EPA/ADEQ requirement is that public water systems test for disinfection byproducts (DBP's). During 2005 and 2006 the District collected samples for this test during the month of December. These test results were rejected by ADEQ because DBP problems are more common during warm weather. So CHCID should have collected these samples during the summer to get the most meaningful results.

Arizona Administrative Code R18-4-214.02. Disinfectant Residuals and Disinfection Byproducts (Effective January 1, 2004)

E. A system shall collect disinfection byproduct and residual disinfection level samples at sites that are representative of water throughout the distribution system according to a written monitoring plan.

G. Monitoring requirements for disinfection byproducts.

1. Routine monitoring for TTHM and HAA5. A CWS or NTNCWS shall monitor at the frequency indicated *below*:

Type of system	**Minimum Monitoring Frequency**	**Sample Location in the distribution system**
CWS or NTNCWS using solely groundwater and using chemical disinfectant and serving fewer than 10,000 persons	One water sample per year per water treatment plant during month of warmest water temperature	Locations representing maximum residence time.