Zone 7 Water Agency
Serving the Livermore-Amador Valley

WATER QUALITY MANAGEMENT PROGRAM
2007 PROGRAM REPORT

This annual report summarizes 2007 water quality monitoring data and provides an update on Zone 7 Water Agency's Water Quality Management Program (WQMP), which the agency established with its retailers in 2003. The WQMP has been assisting Zone 7 in identifying ways to meet anticipated future regulations, reduce public health risks, and improve the delivered water quality—especially its taste, odor and hardness, by effectively managing water quality issues, guiding operations, upgrading or improving facilities, and providing new facilities when necessary.

WQMP WATER QUALITY TARGETS are internal goals that Zone 7 applies to specific constituents that affect potable and non-potable water quality. These targets set goals that are significantly more stringent than existing regulations. Some of these constituents have been identified as "key parameters of concern" based upon the concerns expressed by our customers and the levels found in our local drinking water supplies, and anticipated changes in regulations. In 2007, Zone 7 met all of its non-potable water quality targets, and primary and health-related drinking water targets. However, some of our aesthetic water quality and operational targets were not met consistently, including those for drinking water hardness, taste, odor, appearance, chloride, chloramine residuals, and free ammonia residuals.

HOW ARE WE MEETING WQMP WATER QUALITY TARGETS? Zone 7 continued to work on and support operational and planning activities that help meet our water quality targets and ensure that the service area has enough water. In addition to ongoing internal agency planning, we also work closely with various organizations to protect source water at the State level. Water quality improvement projects were identified in Zone 7's Capital Improvement Program (CIP). Two critical capital projects are already in construction or design, with the Mocho Demineralization Facility scheduled to be completed in 2009, and the Altamont Water Treatment Plant/Pipeline Project currently in design. Other key improvement projects are anticipated for later completion (as early as 2012 - Taste and Odor Treatment at Del Valle and Patterson Pass Water Treatment Plants; and planned for 2013 - the next phase of demineralization). In the interim, Zone 7 is utilizing temporary powdered activated carbon (PAC) feed units at Del Valle and Patterson Pass treatment plants to assist in reducing levels of odor-causing compounds.

HOW TO READ WATER QUALITY TARGET GRAPHS Each bar on the chart represents the range of measurements for various constituents taken during 2007. The diamonds represent the average values over the year. Water quality targets or ranges are highlighted in green. Any maximum contaminant level (MCL) set by state and federal water quality regulations are highlighted by the yellow bar at the top of each chart, where available.

DEFINITIONS

***MCL**: Maximum Contaminant Level, the highest level of a contaminant that is allowed in drinking water established by the U.S. Environmental Protection Agency and the California Department of Health Services. Primary MCLs are enforceable standards based on health effects. Secondary MCLs are based on aesthetic qualities such as taste, odor, and appearance;*

***mg/L**: milligrams per liter, a unit expressing the concentration of chemical constituents in solution as weight (milligram) of solute per unit volume (liter) of water; equivalent to one part per million;*

***µg/L**: micrograms per liter; equivalent to one part per billion;*

***pCi/L**: picoCuries per liter; a measure of radioactivity;*

Table 1. Status of Potable Water Quality Targets

Key Parameters of Concern	Water Quality Targets[1]	Target Currently Met	Requires Optimization	Requires Capital Investment
Appearance	Minimize air bubbles/cloudiness events[5]	✓	✓[7]	✓
Arsenic (µg/L)	<5	✓		
Chloramines				
Total Residual (mg/L as Cl_2)	2.0 - 2.5 from water treatment plants (WTPs), wells will be operated to be as close to this target range as feasible	✓[2]	✓	✓
Cl_2:NH_3-N	4:1 to 5:1	✓[2]	✓	✓
Minimize odor	Chloraminate above pH 8.0 for WTPs	✓		
Prevent Nitrification:				
Free Ammonia Residual (mg/L as N)	<0.15	✓[2]	✓	✓
Nitrite (mg/L as N)[3]	<0.02	NA		
Consistency	Provide consistent chloramine residual at all wells and WTPs		✓	✓
Chloride (mg/L)	<100	✓[2]		✓
Chromium VI $^{Cr6+}$(µg/L)	<20 (pending potential regulations)	✓		
Cryptosporidium	4-log removal, including multi-barrier control	✓		
Disinfection By-Products (DBPs)				
Maximum leaving WTP	Total Trihalomethanes (TTHMs) <64 µg/L	✓		
	Five Haloacetic acids (HAA5) <48 µg/L	✓		
Running Annual Average (RAA) DBPs	TTHM <40 µg/L	✓		
at Retailer Turnouts	HAA5 <30 µg/L	✓		
N-Nitrosodimethylamine (NDMA) (ng/L)	<10 (pending potential regulations)	NA		
Hardness (mg/L as $CaCO_3$)	<150	✓[2]		✓
pH (Units)	non-corrosive	✓		
	pH leaving WTP at +/- 0.2 units of target	✓		
Radon (pCi/L)	<1000 (pending potential regulations)	NA		
Taste and Odor (earthy/musty)				
Odor Threshold Concentrations				
2-Methyisoborneol (MIB)	9 ng/L	✓[4]		✓
Geosmin	4 ng/L	✓[4]		✓
Events [5]	No events		✓[6]	✓
Total Dissolved Solids (TDS) (mg/L)	<500	✓		✓

[1] Targets are either at the secondary MCLs or 80% of the primary MCLs except for the key parameters of concern in the table above.

[2] Averages met target.

[3] Monitoring discontinued after retailer meeting in 2006. Future monitoring to be conducted as requested by retailers.

[4] Zone 7 met MIB and Geosmin targets when PAC was used for T&O control.

[5] An event is defined as when three or more similiar complaints are received in a 7-day period.

[6] One taste and odor event was observed in 2007.

[7] There were no air bubbles/cloudiness events observed in 2007.

NA - Not analyzed during 2007.

Table 2a. Retail Customer Water Quality Complaints

Parameter	Dublin San Ramon Services District (DSRSD)	City of Pleasanton	Cal Water Service	City of Livermore	Totals
Odor					
chemical	3	1			4
chlorinous	4	5			9
earthy/musty	7	3	1		11
marshy/swampy/septic/sulfurous	1	6			7
medicinal/phenolic					
unspecified/other	5	1		4	10
Mouth Feel/Nose Feel					
Colored/Murky				26	26
Cloudy/Air	1	6		1	8
Other	4			9	13
Particles	1	2			3
Salty Taste					
Hardness		1			1
Other/Unspecified Taste					

Table 2b. Cloudy Water Complaints

Retailer	Cloudy/Air
DSRSD	1
Pleasanton	6
CWS	NA
Livermore	1

Table 3. Status of Non-Potable Water Quality Targets

Key Parameters of Concern	Units	Maximum Applied Level/Targets	Average Targets	SBA		
		Vineyards		Avg	Min	Max
Boron*	mg/L	<1	<0.5	0.15	<0.1	0.23
Chloride	mg/L	<200	<125	68	23	125
Emitter Clogging Potential Ca+Mg+	mEq/L	3 to 4	3 to 4	1.9	1.2	2.7
Available Nitrogen from Nitrate	mg/L as N	-	<10 during summer	0.5	0.2	1.0
pH	---	-	<8.0	7.6	6.7	8.3
Sodium	mg/L	<200	<100	54	24	84
Total Dissolved Solids	mg/L	-	<650	244	133	341

*Boron minimum reporting limit (MRL) is at 0.10 mg/L

NA: Not Available

Figure 1. Arsenic*

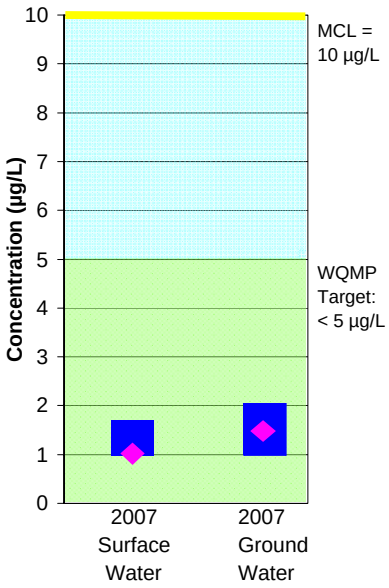


Figure 2. Total Chromium*

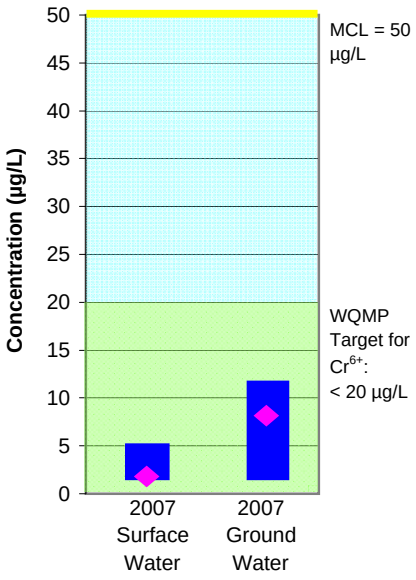


Figure 3. Chloride*

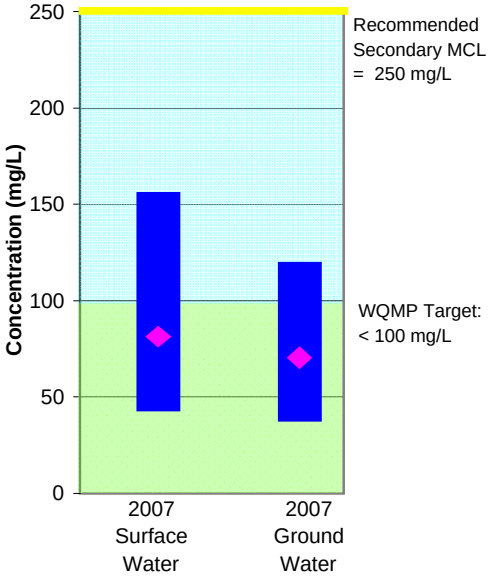


Figure 4. Total Dissolved Solids (TDS)*

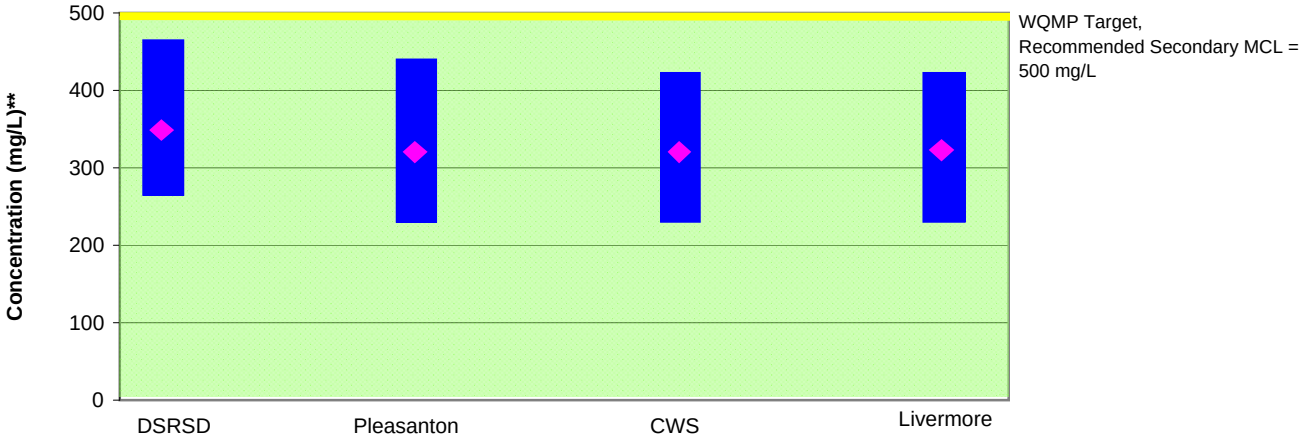
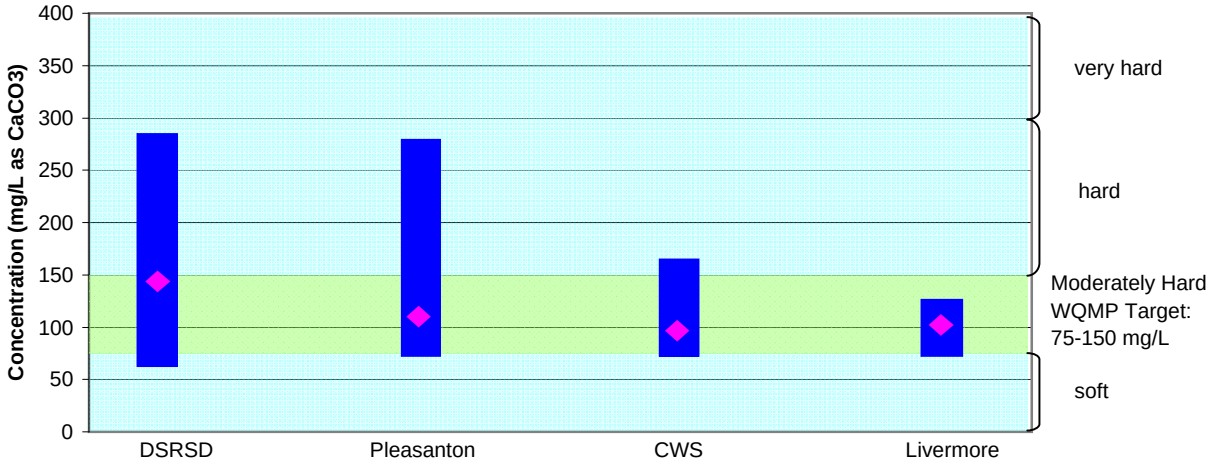


Figure 5. Total Hardness*



*Average values are flow weighted **TDS is estimated from electrical conductivity readings

Figure 6. Chloramines*, **

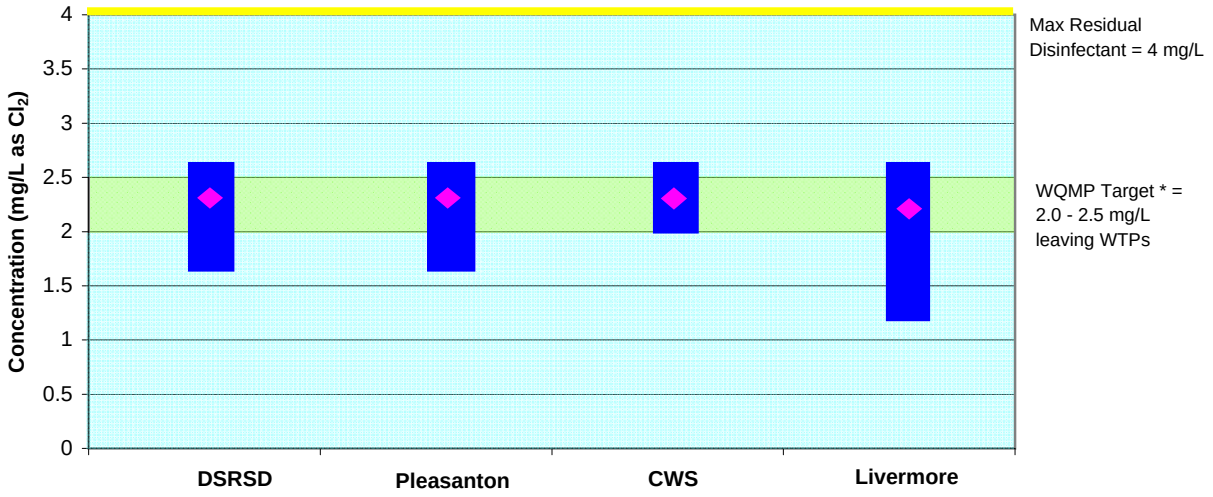
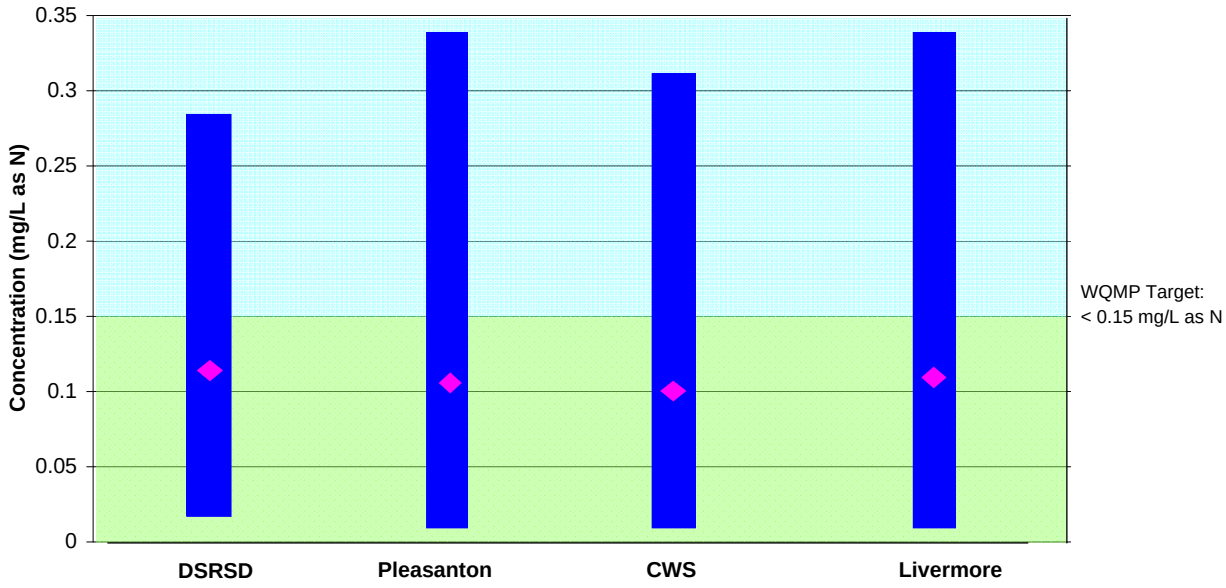


Figure 7. Free Ammonia*, *



* Sample were taken once a week for each retailer

** Results are an average of three locations for DSRSD and Pleasanton and two locations for CWS.

*** Results are an average of two locations for DSRSD and Pleasanton.

Figure 8a. Total Trihalomethanes (TTHMs)* ** Retailer Turnout Samples

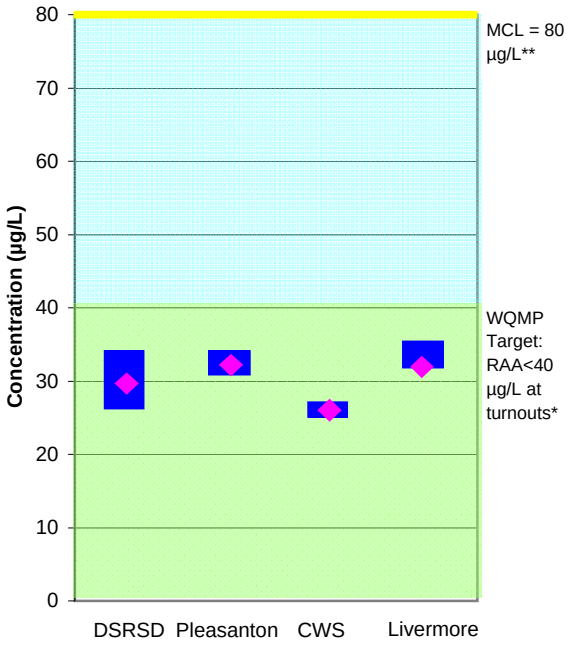


Figure 8b. Five Haloacetic Acids (HAA5)* ** Retailer Turnout Samples

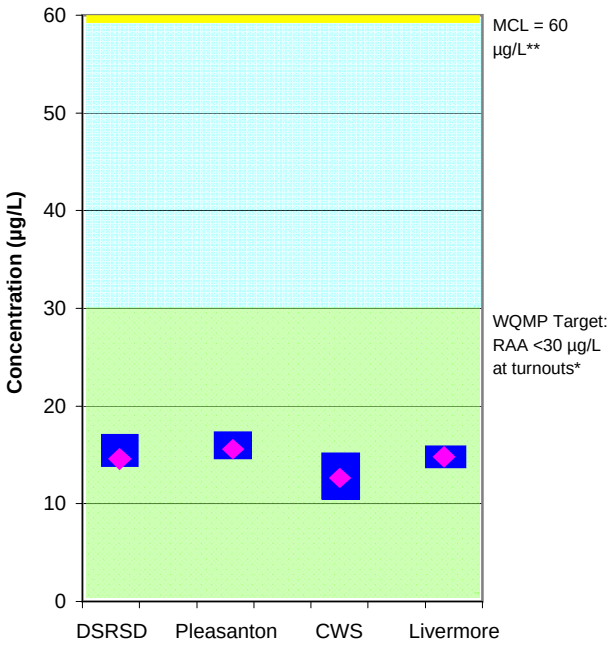


Figure 9a. Total Trihalomethanes (TTHMs)* WTP Effluent Samples**

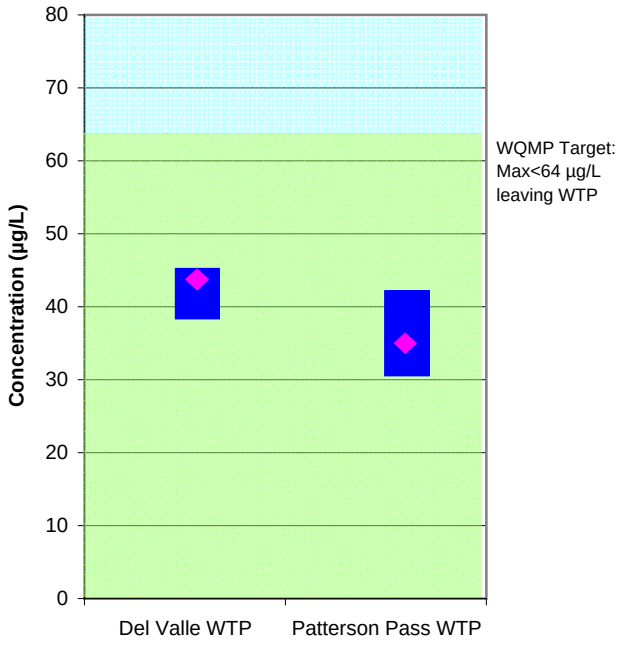
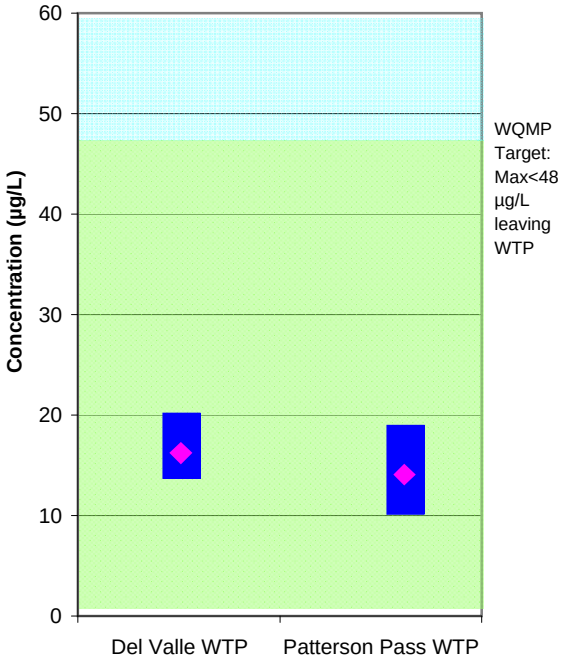


Figure 9b. Five Haloacetic Acids (HAA5s)* WTP Effluent Samples**



* Quarterly running annual average (RAA) DBPs at Retailer's turnouts.

** MCLs for TTHMs/HAA5s are based on quarterly RAA of system-wide averages

*** There is no MCL for TTHMs/HAA5s leaving WTP