ONE CULLIGAN PARKWAY
NORTHBROOK. IL 60062-6209

TELEPHONE 847/205-6000
FACSIMILE 847/205-6030

Report Date: 8/9/2006

CERTIFICATE OF ANALYSIS

ANALYSIS NUMBER: 0604111

Control Number:

McCollum Water Conditioning Co

Customer: CULLIGAN OF TR. CITIES

P.O. Box 1037 TCAS
Blountville, TN 37617

KINGSPORT TN

Zip Code:

Account Number: 41270

Customer Account #:

Salesperson BILL FRYE

cc:

SAMPLE INFORMATION:

Analysis Type Requested ICP Scan

Sampled:	7/28/2006	Supply/Source:	MUNICIPAL	Condition:	
Received:	8/4/2006	Sampling Point:	FAUCET	Application:	Commercial

ANALYSIS INFORMATION:

Turbidity(Method 180.1 R 2.	0.2 NTU	Turbidity after filtration	*NA
Conductivity(Method 120.1	*NA	Est. TDS by Conductivity	*NA
Color(Method 2120C)	*NA	Color after Acidification	*NA
pH(Method 150.1 R 1982)	*NA	Tannins	*NA

Concentrations reported as mg/L (PPM) unless otherwise indicated

CATIONS (Method 200.7)

	As Element	As CaCO3
Calcium (Ca)	28.4	71.0
Magnesium (Mg)	6.6	27.2
Sodium (Na)	5.7	12.4
Potassium (K)	1.8	2.3
Strontium (Sr)	0.13	0.2
Barium (Ba)	0.02966	
Iron (Fe)	<0.05	
Manganese (Mn)	<0.02	
Copper (Cu)	0.225	
Zinc (Zn)	0.53	

ANIONS (Method 300.0)

	As Element	As CaCO3
Chloride (Cl)	*NA	
Nitrate As N (NO3)	*NA	
Nitrite As N (NO2)	*NA	
Sulfate (SO4)	*NA	
Bicarbonate	*NA	
Carbonate	*NA	
Fluoride (F)	*NA	
Silica (SiO2)	4.55	

	Mg/L	GPG		Mg/L	GPG		Mg/L	GPG
Cations (CaCO3)	112.9	6.60	Anions (CaCO3)	.0	0.00	Hardness (CaCO3)		

Additional Tests

Nickel (Ni)	<10ug/l	Boron, (Bo)	12.3ug/l
Aluminum by ICP	<50ug/L		

*NA = Not Analyzed NM = Not Measured ND = Not Detected

This report can only be reproduced in its entirety. The results reported here are representative of the sample as received in the laboratory.

Certifications: CA-01133A; IL-000280; NY-11756; WI-399016200; TX-TX269-2003
IA-369

Richard Cook
Manager Analytical Laborator

Consumer: CULLIGAN OF TR. CITIES

FEDERAL SAFE DRINKING WATER ACT

All tested parameters exceeding the maximum concentration levels (MCL) established under the "Federal Safe Drinking Water Act"

	Parameter	Found	MCL
PRIMARY:			
SECONDARY:			

* MCL for Turbidity varies as follows:
1. Municipal Direct Filtration 0.5 NTU
2. Municipal Sand Filtration 1.0 NTU
3. Unfiltered Water Supply 5.0 NTU

TYPICAL POST RO DRINKING WATER UNITS

(Concentrations reported as mg/L (PPM) as the element)

Iron (Fe)	0.0	Magnesium (Mg)	0.1
Manganese (Mn)	0.0	Sodium (Na)	0.2
Zinc (Zn)	0.0	Potassium (K)	0.0
Copper (Cu)	0.0	Chloride (Cl)	
Nitrate As N (NO3)		Nitrite As N (NO2)	
Sulfate (SO4)		Fluoride (F)	

These values are typical of new modules on water with a pH of 7-9 at 70-74 F with 500-3000 mg/L total salts operating with 40-70 PSI pressure across the module. Local conditions may yield different results.

DI CALCULATION FACTORS

			GPG	mg/L
Sodium	10.9%	Weak Base Fact X	0.0	0.0
Alkalinity	0.0%	Carbonic Acid	0.0	0.0
Chloride	0.0%	Cation Fact Y	6.6	112.8
Carbonic Acid	0.0%	Silica	0.2	3.78
Monovalent Ions	327.9%	Carbon Dioxide	0.0	0.0
Silica	100.0%	Strong Base Fact Z	0.3	4.6

Analysis Date:

Method	**Date**	**Method**	**Date**
180.1 R 2.0	08/08/06	200.7 R 4.4	08/08/06
300.0 R 2.1	08/08/06		

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pH – the acid strength of water on a scale of 0 to 14 (neutral = pH 7.0). Values from 7→0 are increasingly more acidic; values from 7→14 are increasingly more alkaline. The recommended range for drinking water under the U.S. regulations is 6.5 to 8.5.

Conductivity – the relative ability of water to carry an electrical current, used to estimate the total concentration of dissolved ions.

Turbidity – cloudiness in water caused by the dispersion of light by extremely tiny particles. Measured on an arbitrary scale of Nephelometric Turbidity Units (NTUs). The mandatory maximum under U.S. regulations is 0.5 NTU.

Color – the amount of brownish-yellow color from dissolved tannins from vegetation (like tea) and metals (like rust) and their combinations, measured on an arbitrary scale. The recommended maximum under U.S. regulations is 15 CU.

Silica, SiO_2 – a naturally occurring dissolved mineral, which produces a glassy scale in high temperature equipment but is more important in predicting the life of certain water treatment media.

Hydrogen Sulfide, H_2S – a toxic, noxious, corrosive gas that smells like rotten eggs. Bacteria acting on sulfate or organic sulfur-containing materials in the absence of oxygen produce it. Only "special" water analyses can determine hydrogen sulfide levels.

Total Hardness – the sum of all metal ions which react with soap to inhibit sudsing and form "scum" or "bathtub ring" – mostly Calcium and Magnesium. When heated or evaporated, hard water can cause lime scale that can deposit on sink and shower fixtures and walls and result in loss in efficiency or fuel waste in water heaters, boilers, and cooling systems.

Total Alkalinity – the sum of hydroxide (OH^-), carbonate (CO_3^{-2}), and bicarbonate (HCO_3^-) ions, which can combine with both acids and bases, which act to buffer water and prevent sudden uncontrolled changes in pH.

Cations – ions (atoms or molecules with an electrical charge) with a positive (+) electrical charge, so named because they go toward the cathode in an electric field. Besides the hardness ions, the main cations in water are sodium, Na^+, and potassium, K^+.

Anions – ions (atoms or molecules with an electrical charge) with a negative (-) electrical charge, so named because they go toward the anode in an electric field. The main anions in water are hydroxide (OH^-), carbonate (CO_3^{-2}), bicarbonate (HCO_3^-) (which together comprise "alkalinity"), sulfate (SO_4^{-2}), nitrate (NO_3^-) and chloride (Cl^-).

Nitrate/Nitrite, NO_3^-/NO_2^- – important because of toxicity to infants, nitrate comes from fertilizers and animal wastes. Water supplies with high nitrate levels should also be screened for agricultural pesticides and bacterial contamination. The mandatory limit under U.S. regulations is 10 mg/L.

Sulfate, SO_4^{-2} – a common mineral component, only rarely occurring at excessive levels, which can cause a temporary diarrhea in visitors who have not become acclimated to it. Recommended U.S. limit, 250 mg/L.

Flouride, F^- – often added to water to inhibit tooth decay. Mandatory U.S. limits range from 4.0 mg/L in northern regions to 1.4 mg/L in southern regions (where more water in consumed).

Chloride, Cl^- – a common mineral component, can be found in elevated levels near seawater and other salt supplies, which can cause taste problems and can contribute to corrosion. Recommended U.S. limit, 250 mg/L.

Iron, Fe – cause of metallic taste, rust stains on laundry and porcelain fixtures, and clogging/fouling of equipment. The recommended U.S. limit is 0.3 mg/L.

Manganese, Mn – cause of metallic taste and black stains on laundry and porcelain. Often occurs in combination with iron. The recommended U.S. limit is 0.05 mg/L Mn or a total of 0.3 mg/L of Fe + Mn.

Copper, Cu – cause of green stains on porcelain and fittings, seldom naturally-occurring, usually due to corrosion. The mandatory U.S. "actions level" of 1.3 mg/L is tied to the regulation for lead contamination due to corrosion of plumbing materials.

Zinc, Zn – cause of metallic taste and upset stomach. Due to corrosion of galvanized plumbin g materials. Recommended U.S. limit, 5.0 mg/L.

Units of Concentration used in this Report

gpg-abbreviation for "grains per gallon" calculated in terms of calcium carbonate equivalents. Multiply by 17.12 to convert gpg into either ppm or mg/L.
ppm-abbreviation for "parts per million." Interchangeable with mg/L.
mg/L-abbreviation for "milligrams per liter." Interchangeable with ppm. (There are one million milligrams in a liter of pure water).
ppb-abbreviation for "parts per billion." Interchangeable with µg/L or micrograms per liter.
µg/L-abbreviation for "micrograms per liter." Interchangeable with ppb. (There are a billion micrograms in a liter).

1000 ppb = 1 ppm; 1000 µg/L = 1 mg/L

THIS ANALYSIS WILL NOT DETERMINE WHETHER A WATER IS SAFE FOR HUMAN CONSUMPTION