



IBWA STANDARD OF QUALITY REPORT

Customer name DAMBRA/DBA/CULLIGAN MISSOULA
Customer Address
Customer city, state
Sample Date 10/3/2013
Sample Description REVERSE OSMOSIS
Date reviewed 12/4/2013

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Sample I.D. 1320291
Report Date 12/4/2013

Inorganic Chemicals (IOCs)

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
7440-36-0	Antimony (Sb)	N.D.	6	2	ug/l	200.8
7440-38-2	Arsenic (As)	N.D.	10	2	ug/l	200.8
7940-41-7	Beryllium (Be)	N.D.	4	0.1	ug/L	200.8
	Bromate by ICP	N.D.	10		ug/l	321.8
7440-43-9	Cadmium (Cd)	N.D.	5	0.1	ug/l	200.8
	chloramine	0.000	4		mg/L	999.9
	Chlorine, Total	0.0	0.1		mg/l	999.9
	chlorinedioxide	N.D.	0.8		mg/L	999.9
	chlorite	N.D.	1		mg/L	
7440-47-3	Chromium (Cr)	N.D.	50	0.5	ug/l	200.8
16984-48-8	Fluoride (F)	N.D.	3	0.05	mg/l	300.0
7439-92-1	Lead (Pb)	N.D.	5	1	ug/l	200.8
7439-97-6	Mercury (Hg)	N.D.	1	0.2	ug/l	245.1
7440-02-0	Nickel (Ni)	N.D.	100	10	ug/l	200.8
	Nitrate As N (NO3)	N.D.	10	0.5	mg/l	300.0
	Nitrite As N (NO2)	N.D.	1	0.1	mg/l	300.0
	Perchlorate by IC	N.D.	2		ug/L	314.1
7782-49-2	Selenium (Se)	N.D.	10	2	ug/l	200.8
7440-28-0	Thallium (Tl)	N.D.	2	1	ug/l	200.8

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Secondary Inorganic Parameters						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
7429-90-5	Aluminum (Al)	N.D.	200	2	ug/l	200.8
	Chloride (Cl)	3.3	250	0.5	mg/l	300.0
7440-50-8	Copper (Cu)	N.D.	1	0.003	mg/l	200.7
	Est TDS by Cond.	29.	500		ppm	999.9
7439-89-6	Iron (Fe)	N.D.	0.3	0.05	mg/l	200.7
7439-96-5	Manganese (Mn)	N.D.	0.05	0.02	mg/l	200.7
7440-22-4	Silver (Ag)	N.D.	25	0.1	ug/l	200.8
	Sulfate (SO4)	4.	250	3	mg/l	300.0
7440-66-6	Zinc (Zn)	N.D.	5	0.05	mg/l	200.7

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Volatile Organic Chemicals (VOCs)						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
630-20-6	1,1,1,2-Tetrachloroethane	N.D.			ppb	524
71-55-6	1,1,1-Trichloroethane	N.D.	30	1	ppb	524
79-00-5	1,1,2-Trichloroethane	N.D.	3		ppb	524
75-34-3	1,1-Dichloroethane	N.D.			ppb	524
75-35-4	1,1-Dichloroethene	N.D.	2	1	ppb	524
	1,1-Dichloropropane	N.D.			ppb	524
563-58-6	1,1-Dichloropropene	N.D.			ppb	524
	1,2,3-Trichlorobenzene	N.D.			ppb	524
96-18-4	1,2,3-Trichloropropane	N.D.			ppb	524
120-82-1	1,2,4-Trichlorobenzene	N.D.	9	1	ppb	524
	1,2,4-Trimethylbenzene	N.D.			ppb	524
96-12-8	1,2-Dibromo-3-chloropropa	N.D.			ppb	524
95-50-1	1,2-Dichlorobenzene	N.D.	600		ppb	524
107-06-2	1,2-Dichloroethane	N.D.	2	1	ppb	524
78-87-5	1,2-Dichloropropane	N.D.	5	1	ppb	524
	1,3,5-Trimethylbenzene	N.D.			ppb	524
541-73-1	1,3-Dichlorobenzene	N.D.			ppb	524
142-28-9	1,3-Dichloropropane	N.D.			ppb	524
106-46-7	1,4-Dichlorobenzene	N.D.	75		ppb	524
590-20-7	2,2-Dichloropropane	N.D.			ppb	524
95-49-8	2-Chlorotoluene	N.D.			ppb	524
591-78-6	2-Hexanone	N.D.			ppb	524
106-43-4	4-Chlorotoluene	N.D.			ppb	524
67-64-1	Acetone	N.M.			ppb	524

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Volatile Organic Chemicals (VOCs)						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
71-43-2	Benzene	N.D.	1	1	ppb	524
108-86-1	Bromobenzene	N.D.			ppb	524
74-97-5	Bromochloromethane	N.D.			ppb	524
75-27-4	Bromodichloromethane	N.D.			ppb	524
75-25-2	Bromoform	N.D.			ppb	524
74-83-9	Bromomethane	N.D.			ppb	524
75-15-0	Carbon Disulfide	N.D.			ppb	524
56-23-5	Carbon Tetrachloride	N.D.	5	1	ppb	524
108-90-7	Chlorobenzene	N.D.	50		ppb	524
75-00-3	Chloroethane	N.D.			ppb	524
67-66-3	Chloroform	N.D.			ppb	524
74-87-3	Chloromethane	N.D.			ppb	524
156-59-4	Cis-1,2-Dichloroethene	N.D.	70	1	ppb	524
10061-01-5	cis-1,3-Dichloropropene	N.D.			ppb	524
124-48-1	Dibromochloromethane	N.D.			ppb	524
74-95-3	Dibromomethane	N.D.			ppb	524
75-71-8	Dichlorochlorodifluorometh	N.D.			ppb	524
75-09-2	Dichloromethane	N.D.	3		ppb	524
100-41-4	Ethylbenzene	N.D.	700	1	ppb	524
74-88-4	Iodomethane	N.D.			ppb	524
98-82-8	Isopropylbenzene	N.D.			ppb	524
	m,p-Xylene	N.D.	1		ppb	524
78-93-3	Methyl Ethyl Ketone	N.D.			ppb	524
108-10-1	Methyl Isobutyl Ketone	N.D.			ppb	524

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Volatile Organic Chemicals (VOCs)						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	n-Butylbenzene	N.D.			ppb	524
	n-Propylbenzene	N.D.			ppb	524
95-47-6	o-Xylene	N.D.			ppb	524
	p-iso-Propyltoluene	N.D.			ppb	524
	sec-Butylbenzene	N.D.			ppb	524
100-42-5	Styrene	N.D.	100	1	ppb	524
127-18-4	Tetrachloroethene	N.D.	1	1	ppb	524
108-88-3	Toluene	N.D.	1000	1	ppb	524
156-60-5	Trans-1,2-Dichloroethene	N.D.	100	1	ppb	524
10061-02-6	trans-1,3-Dichloropropene	N.D.			ppb	524
79-01-6	Trichloroethene	N.D.	1	1	ppb	524
75-69-4	Trichlorofluoromethane	N.D.			ppb	524
108-05-4	Vinyl Acetate	N.D.			ppb	524
75-01-4	Vinyl Chloride	N.D.	2	1	ppb	524

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Semivolatile Organic Compounds

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	Total recoverable phenols	N.D.	1		ppb	

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Synthetic Organic Chemicals (SOCs)

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	Synthetic organic chemical	N.D.				999.9

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Certifications: CA-06249CA; IL-100213; NY-11756; MT-CERT0091; TX-TX269-2007A
IA-369; VT-VT02199 NELAP Accredited

Richard Cook
Manager Analytical Laboratory

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Additional Regulated Contaminants

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
79-34-5	1,1,2,2-Tetrachloroethane	N.D.	1		ppb	524
1634-04-4	Methyl t-butyl ether	N.M.	70		ppb	524
91-20-3	Naphthalene	N.D.	300		ppb	524
7440-61-1	Uranium by ICP MS	N.D.	30		ug/L	200.8

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Water Properties

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	Color After Acidific	N.M.	5	5		999.9
	Color As Received	N.D.	5	5		999.9
	Conductivity	40.			MMHOS	999.9
	pH	7.2	5 - 8.5			150.1
	Turb After Filtered	N.M.	0.5		NTU	180.1
	Turbidity As Rec'd	0.1	0.5		NTU	180.1

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Radiological Contaminants

CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	Gross Alpha Beta U	N.D.				999.9

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Hardness						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
7440-70-2	Calcium (Ca)	1.4		0.1	mg/l	200.7
7439-95-4	Magnesium (Mg)	0.7		0.1	mg/l	200.7
7440-23-5	Sodium (Na)	1.0		0.1	mg/l	200.7
	Total Hardness	6.6		0.6	mg/l	200.7

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Uncategorized						
CAS ID#	COMPOUNDS	RESULT	SOQ	MRL	Units	Method
	Bromide by ICP	Not Present			ug/L	321.8
	Chlorine, Free	0.0	0.1		mg/l	
	Haloacetic Acids	N.D.	60		ppm	
	M for Alkalinity	10.6			ppm	999.9
	P for Alkalinity	N.M.			ppm	999.9
	pesticide_herb	N.D.				999.9
7440-09-7	Potassium (K)	2.5		0.1	mg/l	200.7
7440-24-6	Strontium (Sr)	N.D.		0.05	mg/l	200.7
	Tannins mg/l	N.D.		2	mg/l	999.9

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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, SiO₂ – 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, H₂S – 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 (CO₃⁻²), and bicarbonate (HCO₃⁻) 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 (CO₃⁻²), bicarbonate (HCO₃⁻) (which together comprise “alkalinity”), sulfate (SO₄⁻²), nitrate (NO₃⁻) and chloride (Cl⁻).

Nitrate/Nitrite, NO₃⁻/NO₂⁻ – 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, SO₄⁻² – 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.

Fluoride, 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 is 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. “action 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 plumbing 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).

$$1000 \text{ ppb} = 1 \text{ ppm}; 1000 \text{ µg/L} = 1 \text{ mg/L}$$

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