

Table 2
Groundwater Quality Overview
April 1999 Milton-Freewater Groundwater Quality Study

Constituent (units)	Maximum Value Observed	Average of Observed Values	Minimum Value Observed	# Times Detected (1)	Federal Primary Drinking Water Standard (2)	Federal Secondary Drinking Water Standard (3)	OAR 340-40-020 Reference Level (4)	Other Comparison Values	Any Problems Identified?
Physical / Chemical Properties									
Alkalinity (mg/l)	196	60	26	34					Probably Not; not a priority pollutant or carcinogen
COD (mg/l)	<5	<5	<5	0					No; not detected
Conductivity (uMhos/cm)	482	152	61	34				50 - 50,000 (7)	Probably Not; within naturally occurring levels
Hardness (mg/l)	191	56	18.9	34					Probably Not; not a priority pollutant or carcinogen
pH (s.u.)	7.9	7.0	6.7	34		6.5 to 8.5			No; within standard
TDS (mg/l)	310	119	55	34		500			No; less than standard
Temp (C)	15.5	12.3	8.2	34					Probably Not; not a priority pollutant or carcinogen
TOC (mg/l)	1	<1	<1	5					Probably Not; not a priority pollutant or carcinogen
TSS (mg/l)	2	<1	<1	11					Probably Not; not a priority pollutant or carcinogen
Common Ions									
Bromide (mg/l)	<0.05	<0.05	<0.05	0					No; not detected
Calcium, Total (mg/l)	44.9	13.7	5.1	34				approx. 300 mg/l in alluvial aquifers (7)	Probably Not; within naturally occurring levels
Chloride (mg/l)	24	2.6	0.5	34		250			No; less than standard
Magnesium (mg/l)	19.5	5.5	1.8	34				generally < 40 (7)	Probably Not; within naturally occurring levels
Manganese (mg/l)	0.00254	0.00081	0.00025	13		0.05			No; less than standard
Potassium (mg/l)	8.97	3.38	1.71	34				up to 50 (7)	Probably Not; within naturally occurring levels
Sodium (mg/l)	18.5	5.3	2.3	34				up to 1,000 (7)	Probably Not; within naturally occurring levels
Sulfate (mg/l)	46.3	4.6	0.79	34		250			No; less than standard
Metals									
Aluminum, Total (mg/l)	0.064	0.038	0.012	8		0.05 to 0.2			No; less than standard
Antimony, Total (mg/l)	0.0052	0.0042	0.0034	4	0.006				No; less than standard
Arsenic, Total (mg/l)	0.0167	0.0092	0.0027	9	0.05				No; less than standard
Barium, Total (mg/l)	0.0617	0.0161	0.0045	34	2		1		No; less than standard
Beryllium, Total (mg/l)	0.0012	0.0003	0.0001	7	0.004				No; less than standard
Boron, dissolved (mg/l)	0.0551	0.0230	0.0137	34				few tenths of mg/l (7)	Probably Not; within naturally occurring levels
Cadmium, Total (mg/l)	<0.0001	<0.0001	<0.0001	0	0.005				No; not detected
Chromium, Total (mg/l)	0.0003	0.0002	0.0002	8	0.1		0.05		No; less than standard
Cobalt, Total (mg/l)	0.0129	0.0072	0.0012	34				2.2 (6)	No; less than guidance concentration
Copper, Total (mg/l)	0.09	0.01	0.0006	34		1.3			No; less than standard
Iron, Total (mg/l)	0.322	0.084	0.0075	34		0.3			Minor problem at 1 well
Lanthanum, Total (mg/l)	0.019	0.0152	0.0088	12					Probably Not; not a priority pollutant or carcinogen
Lead, Total (mg/l)	0.0046	0.0033	0.003	6	0.015				No; less than standard
Lithium, Total (mg/l)	0.0053	0.0021	0.0004	34				generally a few mg/l (7)	Probably Not; within naturally occurring levels
Mercury (mg/l)	<0.00001	<0.00001	<0.00001	0	0.002				No; not detected
Molybdenum, Total (mg/l)	0.0014	0.0007	0.0005	27				generally < 0.01 (7)	Probably Not; within naturally occurring levels
Nickel, Total (mg/l)	0.0010	0.0005	0.0002	29				generally a few ug/l (7)	Probably Not; within naturally occurring levels
Selenium, Total (mg/l)	<0.0030	<0.0030	<0.0030	0	0.05		0.01		No; not detected
Silicon as SiO ₂ , diss. (mg/l)	55	41	31.8	34				1 to 100 (7)	Probably Not; within naturally occurring levels
Silver, Total (mg/l)	0.006	0.0006	0.0002	29		0.1	0.05		No; less than standard
Thallium, Total (mg/l)	<0.0020	<0.0020	<0.0020	0	0.02				No; not detected
Vanadium, Total (mg/l)	0.0262	0.0071	0.0022	34				0.26 (6)	No; less than guidance concentration
Zinc, Total (mg/l)	0.212	0.0355	0.0016	34		5			No; less than standard
Nutrients									
Ammonia-N (mg/l)	0.04	0.02	<0.02	19				1.81 (8)	No; less than guidance concentration
Nitrate + Nitrite (mg/l)	6.6	1.4	0.114	34	10				No concentrations above standard, but some elevated values were detected
Phosphate, Total (mg/l)	0.12	0.06	0.04	34				generally < 10 (7)	Probably Not; within naturally occurring levels
TKN (mg/l)	0.2	0.2	0.2	5					Probably Not; not a priority pollutant or carcinogen
Pesticide Screens									
Carmamate Screen	None Detected	None Detected	None Detected	0	variable				No; not detected
Nitrogen / Phos. Screen	None Detected	None Detected	None Detected	0	variable				No; not detected
Organochlorine Screen	None Detected	None Detected	None Detected	0	variable				No; not detected
Organophosphate Screen	None Detected	None Detected	None Detected	0	variable				No; not detected
Phenoxyherbicide Screen	Positive	None Detected	None Detected	6	variable				No; none above standards
Dacthal & Metabolites (ug/l)	24.6	7.4	0.2	6				4000 (5)	No; less than guidance concentration
Pesticides By Solid Phase Extraction									
Atrazine (ug/l)	0.019	0.014	0.007	4	3				No; less than standard
Atrazine, desethyl (ug/l)	0.091	<0.02	<0.02	5					Probably Not; toxicology data are similar to Atrazine
Chlorpyrifos (ug/l)	0.0070 E	<0.01	<0.01	2					No; trace amount estimated to be present
Dacthal (ug/l)	0.0090 E	<0.01	<0.01	1				4000 (5)	No; less than guidance concentration
Simazine (ug/l)	0.118	0.0507	0.0097	4	4				No; less than standard
Terbacil (ug/l)	0.0170 E	<0.02	<0.02	2					No; trace amount estimated to be present
Bacteria									
E. coli (cfu/100ml)	6 est	<2	<2	1	presence				Yes (at 1 well), but resampling was negative
Fecal Coliform (cfu/100ml)	14 est	<2	<2	3	presence				Yes (at 3 wells), but resampling was negative
Volatile Organic Compounds									
EPA 8260 VOCs	None Detected	None Detected	None Detected	0	variable				No; not detected

Notes:

- Samples from 30 wells plus 4 duplicate samples were collected totalling 34 samples.
- Primary Drinking Water Standards are legally enforceable standards that apply to public water systems for specific contaminants that can adversely affect public health.
- Secondary Drinking Water Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects or aesthetic effects in drinking water.
- Only presented if lower than the Federal Standard
- Lifetime Health Advisory which is the concentration in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure, with a margin of safety.
- The EPA Region 9 Preliminary Remediation Goals presented here are concentrations in water that are considered protective of humans, including sensitive groups, over a lifetime.
- Value cited in "Study and Interpretation of the Chemical Characteristics of Natural Water" by J.D. Hem, 1985. USGS Water Supply Paper 2254
- There is no drinking water guidance concentration for ammonia relating to human health. There is, however, an ammonia standard for salmonid fish species and is believed to be a lower value than would be necessary to protect human health. This standard is temperature and pH dependant. The value presented in this table is based on the pH and temperature of the sample exhibiting the maximum ammonia concentration.