

TABLE 2. 2007 TREATED WATER QUALITY BELOW JAPAN GULCH PLANT

PARAMETER		2007 ANALYTICAL RESULTS				2007 CANADIAN GUIDELINES	TEN YEAR RESULTS (1998-2007)			
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Min. Max.		≤ = Less than or equal to	Ten Year Median	Samples Analyzed	Range Min.-Max.	Sampling Frequency
Physical Parameters (< = Less than instrument can detect)										
Alkalinity, Total	mg/L	12.2	15	11.3	13.5		13.9	184	6.7 - 16.1	12/yr
Carbon, Dissolved Organic	mg/L	2.3	15	2.0	2.5		2.4	85	1.7 - 6.0	12/yr
Carbon, Total Organic	mg/L	2.5	15	2.3	2.6	Guideline no Longer Required	2.5	88	1.7 - 9.5	12/yr
Colour, True	TCU	5.6	52	3.2	7.9	≤ 15 AO	5.6	395	1.4 - 14	52/yr
Conductivity @ 25 C	uS/cm	41.8	52	32.6	44		43.9	366	31.6 - 48.9	52/yr
Hardness as CaCO ₃	mg/L	15.9	12	15.0	16.9	No Guideline Required	17.2	101	9.5 - 30.7	12/yr
pH	pH units	7.07	51	6.72	7.45	6.5 - 8.5 AO	7.12	364	6.68 - 7.52	52/yr
Total Dissolved Solids	mg/L	26.0	46	13.2	28.4	≤500 AO	25.9	196	13.2 - 33	52/yr
Total Suspended Solids	mg/L	0.7	46	<0.2	4.67		0.5	196	<0.03 - 10	52/yr
Total Solids	mg/L	27.0	46	14	31.0		27	195	14 - 41	52/yr
Turbidity, Grab Samples	NTU	0.47	251	0.23	1.6	1 MAC and ≤ 5 AO	0.39	1,650	0.16 - 9.6	250/yr
Water Temperature, Grab Sample	degrees C	10.0	253	3.3	18.9	≤ 15 AO	9.9	1,758	2.5 - 22.1	250/yr
Non-Metallic Inorganic Chemicals (< = Less than instrument can detect)										
Ammonia, Total	ug/L as N	117	12	<0.61	156	No Guideline Required	186	83	<0.6 - 581	12/yr
Bromide	mg/L as Br	0.001	12	0.0003	0.019		0.003	64	<0.0002 - 0.019	12/yr
Chloride	mg/L as Cl	3.97	2	3.83	4.11	≤250 AO	3.74	14	1.64 - 6.57	2/yr
Cyanide	mg/L as Cn	<0.008	2	<0.002	<0.015	0.2 MAC	<0.015	15	<0.002 - <0.015	2/yr
Fluoride	ug/L as F	8.74	2	8.5	9.0	1500 MAC	8.7	14	<7.0 - 42	2/yr
Nitrate (Total)	ug/L as N	20.0	12	4.7	75	10000 MAC	16.6	83	<0.3 - 105	12/yr
Nitrite (Total)	ug/L as N	<0.3	12			3.2 MAC	<0.3	81	<0.16 - 3.6	12/yr
Nitrogen, Total	ug/L as N	269	12	170	331		269	81	135 - 534	12/yr
Phosphate, Ortho, Dissolved	ug/L as P	1.08	12	<0.9	1.67		0.93	83	<0.04 - 2.93	12/yr
Phosphate, Total, Dissolved	ug/L as P	3.92	12	2.21	5.2		3.34	81	<1.15 - 8.99	12/yr
Phosphate, Total	ug/L as P	5.80	12	3.55	8.60		5.3	83	2.17 - 10.7	12/yr
Silica	mg/L as SiO ₂	4.00	12	3.06	5.61		3.9	26	1.31 - 5.9	12/yr
Silicon	mg/L as Si	1.82	10	1.43	1.95		1.86	43	1.09 - 19.3	10/yr
Sulphate	mg/L as SO ₄	1.52	12	1.38	1.70	≤500 AO	1.57	83	<0.86 - 3.97	12/yr
Sulphide	mg/L as H ₂ S	<0.01	2	<0.006	<0.015	≤0.05 AO	<0.05	15	<0.015 - <0.05	2/yr
Sulfur	mg/L as S	0.5	10	0.5	<3		0.6	58	<0.5 - <3	12/yr

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Metallic Inorganic Chemicals (< = Less than instrument can detect)										
Aluminum	mg/L as Al	0.021	10	0.011	0.037		0.020	63	<0.001 - 0.17	12/yr
Antimony	mg/L as Sb	<0.001	10	<0.0005	<0.001	0.006 MAC	<0.001	64	<0.000005 - <0.06	12/yr
Arsenic	mg/L as As	<0.001	10	<0.0001	0.001	0.01 MAC	<0.05	56	<0.0001 - <0.06	12/yr
Barium	mg/L as Ba	0.004	10	<0.004	0.005	1.0 MAC	0.004	66	<0.002 - 0.012	12/yr
Beryllium	mg/L as Be	<0.0002	10	<0.0001	<0.0002		<0.0002	64	<0.0002 - <0.003	12/yr
Bismuth	mg/L as Bi	<0.05	10	<0.001	<0.05		<0.05	57	<0.001 - <0.05	12/yr
Boron	mg/L as B	<0.008	10	<0.007	0.012	5 MAC	<0.008	66	<0.004 - 0.24	12/yr
Cadmium	mg/L as Cd	<0.00001	10			0.005 MAC	<0.001	64	<0.00001 - <1.0	12/yr
Calcium	mg/L as Ca	4.56	10	4.31	4.88	No Guideline Required	5.01	66	2.84 - 8.98	12/yr
Cerium	ug/L as Ce	Not analyzed in 2007					0.01	2	0.000003 - 0.01	Irregular
Cesium	ug/L as Cs	Not analyzed in 2007					<0.03	2		Irregular
Chromium	mg/L as Cr	<0.001	10			0.05 MAC	<0.005	63	<0.0003 - 0.019	12/yr
Cobalt	mg/L as Co	<0.0005	10				<0.005	64	<0.00002 - 0.02	12/yr
Copper	mg/L as Cu	0.02	10	0.011	0.044	≤ 1.0 AO	0.012	62	<0.003 - 0.04	12/yr
Dysprosium	ug/L as Dy	Not analyzed in 2007					0.001	2	0.0006 - <0.01	Irregular
Erbium	ug/L as Er	Not analyzed in 2007					<0.0006	2		Irregular
Europium	ug/L as Eu	Not analyzed in 2007					0.002	2	0.00001 - <0.003	Irregular
Gallium	ug/L as Ga	Not analyzed in 2007					<0.05	2		Irregular
Gadolinium	ug/L as Gd	Not analyzed in 2007					<0.002	2		Irregular
Germanium	ug/L as Ge	Not analyzed in 2007					<0.001	2		Irregular
Gold	mg/L as Au	Not analyzed in 2007					<0.04	8	<0.0000001 - <0.04	Irregular
Hafnium	ug/L as Hf	Not analyzed in 2007					<0.005	2		Irregular
Holmium	ug/L as Ho	Not analyzed in 2007					0.002	2	0.0009 - <0.003	Irregular
Iron	mg/L as Fe	0.028	10	0.019	0.073	≤ 0.3 AO	0.036	64	0.014 - 0.102	12/yr
Lanthanum	mg/L as La	Not analyzed in 2007					<0.02	8	<0.000001 - <0.02	Irregular
Lead	ug/L as Pb	<0.50	10	0.3	<0.5	10 MAC	<0.5	8	0.03 - 1.6	12/yr
Lithium	ug/L as Li	Not analyzed in 2007					<2	21	<0.06 - <5	Irregular
Lutetium	ug/L as Lu	Not analyzed in 2007					0.0700	2	0.0006 - <0.14	Irregular
Magnesium	mg/L as Mg	1.08	10	1.01	1.16	No Guideline Required	1.18	66	0.59 - 2.0	12/yr
Manganese	mg/L as Mn	0.006	10	0.003	0.015	≤ 0.05 AO	0.008	64	<0.003 - 0.035	12/yr
Mercury, Methyl	ng/L as Hg	<0.01	4	<0.01	<0.02		0.020	49	<0.01 - 0.065	4/yr
Mercury, Total	ng/L as Hg	1.02	4	<0.48	1.33	1000 MAC	0.920	50	<0.05 - 1.49	4/yr
Molybdenum	mg/L as Mo	<0.005	10	<0.001	0.005		<0.005	66	<0.00003 - 0.026	12/yr
Neodymium	ug/L as Nd	Not analyzed in 2007					<0.004	2		Irregular
Nickel	mg/L as Ni	<0.008	10	<0.001	0.008		<0.008	66	0.0002 - <0.05	12/yr
Phosphorus	mg/L as P	<0.1	9				<0.1	65	0.02 - 0.2	12/yr
Potassium	mg/L as K	<1.0	10	<0.2	1	Guideline in Preparation	<1	69	0.006 - 1.05	12/yr
Praseodymium	ug/L as Pr	Not analyzed in 2007					0.0	2	0.002 - 0.004	Irregular
Rubidium	ug/L as Rb	Not analyzed in 2007					0.21	2		Irregular
Samarium	ug/L as Sm	Not analyzed in 2007					<0.006	2	<0.003 - <0.01	Irregular
Scandium	mg/L as Sc	Not analyzed in 2007					<0.05	8	0.001 - <0.05	Irregular

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Selenium	mg/L as Se	<0.001	10	<0.0001	<0.001	0.01 MAC	<0.002	67	<0.00005 - <0.5	12/yr
Silver	mg/L as Ag	<0.0001	10	<0.00002	<0.0001	No Guideline Required	<0.01	64	0.00001 - <1.0	12/yr
Sodium	mg/L as Na	1.59	10	1.44	1.79	≤ 200 AO	1.7	69	<0.05 - 2.8	12/yr
Strontium	mg/L as Sr	0.014	10	0.013	0.016		0.015	66	0.011 - 0.028	12/yr
Tantalum	ug/L as Ta	Not analyzed in 2007					<0.71	2		Irregular
Tellurium	mg/L as Te	Not analyzed in 2007					<0.05	23		Irregular
Thallium	ug/L as Tl	<0.1	10	<0.05	<0.1		<30	57	0.02 - <30	12/yr
Thorium	ug/L as Th	Not analyzed in 2007					<0.001	2		Irregular
Thulium	ug/L as Tm	Not analyzed in 2007					<0.0001	2		Irregular
Tin	mg/L as Sn	<0.02	10	<0.005	<0.02		<0.02	60	<0.00002 - <0.06	12/yr
Titanium	mg/L as Ti	<0.003	10	<0.003	<0.005		<0.003	66	0.0007 - <0.021	12/yr
Tungsten	mg/L as W	Not analyzed in 2007					<0.05	8	<0.000005 - <0.05	Irregular
Uranium	mg/L as U	<0.0001	10			0.02 MAC	<0.0001	28	<0.000005 - 0.0001	12/yr
Vanadium	mg/L as V	<0.005	10				<0.005	66	0.0002 - <0.01	12/yr
Yttrium	ug/L as Y	Not analyzed in 2007					0.022	2	0.005 - 0.04	Irregular
Ytterbium	ug/L as Yb	Not analyzed in 2007					0.0007	2	0.0004 - <0.001	Irregular
Zinc	mg/L as Zn	<0.005	10	<0.005	0.009	≤ 5.0 AO	<0.005	66	0.0006 - 0.049	12/yr
Zirconium	ug/L as Zr	<0.005	10				<5	59	0.0004 - <5	12/yr

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Microbial Parameters (< = Less than method or instrument can detect)										
Coliform Bacteria										
Coliform, Tota	CFU/100 mL	0	248	0	5	0 MAC	0	1,764	0 - 16	250/yr
Coliform, Feca	CFU/100 mL	(Discontinued in April 2006)				0 MAC	0	1,332		Discontinued
<i>E. coli</i>	CFU/100 mL	0	248			0 MAC	0	432		250/yr
Coliform, Background	CFU/100 mL	(Discontinued in July 2006)				No Guideline Required	0	1,403	0 - 3,200	Discontinued
Heterotrophic Bacteria										
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	0	244	0	1,110	No Guideline Required	10	1,733	0 - 9,400	250/yr
Hetero. Plate Count, 35C (2 day)	CFU/1 mL	Discontinued in 2005					1	994	0 - 300	Discontinued
<i>Aeromonas</i> species	CFU/100 mL	0	247	0	1	No Guideline Required	0	974	0 - 44	Special
Disinfectants (< = Less than instrument can detect)										
Disinfectants										
Chlorine, Total Residual	mg/L as Cl ₂	1.18	256	1	1.42	3.0 MAC (chloramines)	1.24	1,808	0 - 1.79	250/yr
Dichloramine	mg/L as Cl ₂	0.155	246	<0.02	0.89		0.12	950	<0.01 - 0.89	250/yr
Monochloramine	mg/L as Cl ₂	0.9	247	0.21	1.15		0.98	951	0.10 - 1.70	250/yr
Biological Toxins (< = Less than instrument can detect)										
Cyanobacterial Toxins										
Anatoxin ε	ug/L	Not analyzed in 2007					<0.16	9		Special
Microcystin-LR	ug/L	Not analyzed in 2007				1.5 (Guideline)	<0.16	10		Special
Other Microcystins	ug/L	Not analyzed in 2007					<0.16	10		Special

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Disinfection By-Products (< = Less than instrument can detect)										
Trihalomethanes (THMs)										
Bromodichloromethane (BDCM)	ug/L	1.55	6	0.9	2.1	16 MAC	1	49	<0.3 - 2.1	6/yr
Bromoform (BRFM)	ug/L	<0.6	6				<0.6	49	<0.2 - <2.0	6/yr
Chloroform (CHLF)	ug/L	12.4	6	7.8	15.0		11	49	2.1 - 18.2	6/yr
Dibromochloromethane (DBCM)	ug/L	<0.5	6				<0.5	49	<0.1 - <1.0	6/yr
Total Trihalomethanes (TTHM)	ug/L	13.8	6	8.7	16.4	100 MAC	12.0	50	2.1 - 19.6	6/yr
Haloacetic Acids (HAAs)										
Bromochloroacetic Acid (BCAA)	ug/L	0.60	6	0.43	0.79		0.38	40	0.21 - <1.0	6/yr
Bromodichloroacetic Acid (BDCAA)	ug/L	<0.2	6				<0.2	40	<0.2 - <1.0	6/yr
Chlorodibromoacetic Acid (CDBAA)	ug/L	<0.5	6				<0.5	40	<0.5 - <2.0	6/yr
Dibromoacetic Acid* (DBAA)	ug/L	<0.2	6	<0.2	0.53		<0.2	39	<0.2 - <1.0	6/yr
Dichloroacetic Acid* (DCAA)	ug/L	10.9	6	8.38	22.2		8.78	40	<1.0 - 22.2	6/yr
Monobromoacetic Acid* (MBAA)	ug/L	<0.2	6				<0.2	40	<0.2 - <1.0	6/yr
Monochloroacetic Acid* (MCAA)	ug/L	<0.5	6				<0.5	40	<0.5 - <2.0	6/yr
Tribromoacetic Acid (TBAA)	ug/L	<0.1	6				<1.0	39	<1.0 - <4.0	6/yr
Trichloroacetic Acid* (TCAA)	ug/L	6.45	6	3.20	8.01		5.01	40	<1.0 - 8.49	6/yr
Haloacetic Acids (*5 Total, HAA5)	ug/L	16.86	6	14.30	30.19	HAA's Guideline in Preparation	14.5	40	<1.0 - 30.19	6/yr
Haloacetic Acids (9 Total, HAA9)	ug/L	17.34	6	14.99	30.98		15.0	40	<4.0 - 30.98	6/yr
Other Disinfection By-Products										
1,1,1-Trichloro-2-propanone	ug/L	Not analyzed in 2007					0.8	4	<0.5 - 1.6	Special
1,1,-Dichloropropanone	ug/L	Not analyzed in 2007					1.1	4	0.9 - 1.2	Special
Bromate	ug/L	<0.32	2	<0.03	<0.6	10 MAC	<0.3	3	<0.3 - <0.6	2/yr
Bromochloroacetonitrile	ug/L	Not analyzed in 2007					<0.5	4		Special
Chloral Hydrate	ug/L	Not analyzed in 2007					0.9	3	<0.5 - 1.4	Special
Cyanogen Chloride	ug/L	Not analyzed in 2007					<0.5	3		Special
Chloropicrin	ug/L	Not analyzed in 2007					<0.5	4		Special
Dibromoacetonitrile	ug/L	Not analyzed in 2007					<0.5	4		Special
Dichloroacetonitrile	ug/L	Not analyzed in 2007					<0.5	4	<0.5 - 0.5	Special
N-nitrosodimethylamine (NDMA)	ug/L	Not analyzed in 2007					<0.001	1		Special
Trichloroacetonitrile	ug/L	Not analyzed in 2007					0.55	4	<0.5 - 0.8	Special

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