

TABLE 1. 2009 UNTREATED (RAW) WATER QUALITY AT JAPAN GULCH PLANT

(Guideline values provide reference only for untreated water)

PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter	Units of	Median	Samples	Range		≤ = Less than or equal to	Ten Year	Samples	Range	Sampling
Name	Measure	Value	Analyzed	Minimum	Maximum		Median	Analyzed	Minimum-Maximum	Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Physical Parameters (< means less than instrument can detect)										
Alkalinity, Total	mg/L	13.9	11	12.8	16.7		14.8	246	7.8 - 17.6	12/yr
Carbon, Dissolved Organic	mg/L as C	2.2	12	1.8	4.6		2.4	101	1.8 - 7.0	12/yr
Carbon, Total Organic	mg/L as C	2.3	12	1.9	5.2	Guideline Archived	2.5	134	1.8 - 9.6	12/yr
Colour, True	TCU	6.8	66	3.5	12	≤15 AO	7.5	575	2.8 - 18	52/yr
Conductivity @ 25 C	uS/cm	41.9	51	39.0	45.4		41.5	512	27.9 - 47.0	52/yr
Hardness as CaCO ₃	mg/L	17.3	21	10.8	20.1	No Guideline Required	16.9	171	9.3 - 34.7	12/yr
pH	pH units	7.22	51	6.93	7.46	6.5 - 8.5 AO	7.26	514	6.64 - 7.67	52/yr
Tannins and Lignins	mg/L	0.19	3	0.11	0.23	Guideline Archived	0.25	33	<0.07 - 0.37	2/yr
Total Dissolved Solids	mg/L	27.5	12	24.0	30.0	≤500 AO	25.3	236	13.0 - 49.0	12/yr
Total Suspended Solids	mg/L	0.5	12	<0.1	3.0		0.8	235	<0.1 - 7.7	12/yr
Total Solids	mg/L	28.5	12	24.2	30.5		26	235	14 - 50	12/yr
Turbidity, Grab Samples	NTU	0.39	248	0.26	0.88		0.38	2,450	0.12 - 2.8	250/yr
Ultraviolet Absorption, 5cm	Abs.@254 nm	0.257	51	0.189	0.342		0.31	486	0.189 - 0.575	52/yr
Ultraviolet Transmittance	%	88.6	239	81.3	92.1		86	1,962	75 - 94.4	250/yr
Water Temp., Grab Samples	degrees C	9.6	256	3.9	20.1	≤15 AO	10	2,684	3.0 - 22.0	250/yr
Non-Metallic Inorganic Chemicals (< means less than instrument can detect)										
Ammonia, Total	ug/L as N	6.3	11	0.79	11.3	Guideline Under Review	5.4	118	<0.18 - 63.6	12/yr
Bromide	mg/L as Br	0.004	11	0.0001	0.009		0.004	86	<0.0001 - 0.021	12/yr
Bromate	ug/L as BrO ₃	<0.76	2	<0.03	<1.5	10 MAC	<0.03	7	<0.03 - <1.5	2/yr
Chloride	mg/L as Cl	2.8	2	2.6	3	≤ 250 AO	2.58	20	1.82 - 6.37	2/yr
Cyanide	mg/L as Cn	<0.009	2	<0.002	<0.015	0.2 MAC	<0.015	21	<0.002 - <0.015	2/yr
Fluoride	mg/L as F	0.1	2	<0.007	0.1	1.5 MAC	<0.008	20	<0.007 - 0.13	2/yr
Nitrate, Dissolved	ug/L as N	14.6	11	2.2	69.2		16.2	111	<0.5 - 97.8	12/yr
Nitrite, Dissolved	ug/L as N	<0.3	11				<0.3	109	<0.16 - 6.85	12/yr
Nitrogen, Total	ug/L as N	87.3	11	73.7	107.2		89.6	102	17.4 - 304	12/yr
Phosphate, Ortho, Dissolved	ug/L as P	0.42	11	0.1	0.98		0.90	109	<0.10 - 4.41	12/yr
Phosphate, Total, Dissolved	ug/L as P	2.60	11	1.50	5.20		2.8	109	<0.4 - 7.8	12/yr
Phosphate, Total	ug/L as P	5.20	11	3.70	7.5		5.08	110	<0.7 - 13.1	12/yr
Silica	mg/L as SiO ₂	3.40	10	2.94	5.6		3.9	56	1.53 - 6.31	12/yr
Silicon	mg/L as Si	1.84	12	1.43	2.86		1.81	69	1.18 - 22.8	12/yr
Sulphate	mg/L as SO ₄	1.82	11	1.48	2.89	≤ 500 AO	1.58	105	<0.8 - 7.4	12/yr
Sulphide	mg/L as H ₂ S	<0.01	2	<0.007	<0.015	≤ 0.05 AO	<0.02	22	0.002 - <0.062	2/yr
Sulphur	mg/L as S	<3.0	12				0.6	82	<0.5 - 3.0	12/yr

mg/L = milligrams per litre
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CFU = Colony Forming Units
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 Median = middle point of all values

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PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter	Units of	Median	Samples	Range		≤ = Less than or equal to	Ten Year	Samples	Range	Sampling
Name	Measure	Value	Analyzed	Minimum	Maximum		Median	Analyzed	Minimum-Maximum	Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Metallic Inorganic Chemicals (< means less than instrument can detect)										
Aluminum	mg/L as Al	0.020	12	0.013	0.059	0.2 Operational Guideline	0.02	90	<0.008 - 0.17	12/yr
Antimony	mg/L as Sb	<0.005	12			0.006 MAC	<0.001	91	<0.000005 - <0.08	12/yr
Arsenic	mg/L as As	0.0001	12	<0.0001	0.0003	0.01 MAC	<0.001	92	0.00003 - <0.06	12/yr
Barium	mg/L as Ba	0.004	12	0.003	0.004	1.0 MAC	0.004	92	<0.002 - 0.04	12/yr
Beryllium	mg/L as Be	<0.0001	12				<0.0002	90	<0.0001 - <0.003	12/yr
Bismuth	mg/L as Bi	<0.001	12				<0.05	80	<0.001 - <0.05	12/yr
Boron	mg/L as B	<0.05	12	<0.05	0.05	5 MAC	<0.008	92	<0.004 - 0.33	12/yr
Cadmium	mg/L as Cd	0.00001	12	<0.00001	0.00005	0.005 MAC	<0.00002	91	<0.00001 - <0.006	12/yr
Calcium	mg/L as Ca	4.92	12	3.25	5.93	No Guideline Required	4.95	92	2.75 - 10.2	12/yr
Cerium	ug/L as Ce	Not analyzed in 2009					0.007	2	0.004 - 0.01	Irregular
Cesium	ug/L as Cs	Not analyzed in 2009					<0.029	2	<0.028 - <0.03	Irregular
Chromium	mg/L as Cr	<0.001	12			0.05 MAC	<0.001	90	<0.0002 - 0.044	12/yr
Cobalt	mg/L as Co	<0.0005	12				<0.0005	91	0.00003 - <0.02	12/yr
Copper	mg/L as Cu	0.00070	12	0.0006	0.0015	≤ 1.0 AO	0.001	90	<0.0004 - 0.90	12/yr
Dysprosium	ug/L as Dy	Not analyzed in 2009					0.008	2	0.005 - 0.01	Irregular
Erbium	ug/L as Er	Not analyzed in 2009					0.005	2	0.0006 - <0.01	Irregular
Europium	ug/L as Eu	Not analyzed in 2009					0.001	2	0.00001 - <0.002	Irregular
Gallium	ug/L as Ga	Not analyzed in 2009					<0.05	2		Irregular
Gadolinium	ug/L as Gd	Not analyzed in 2009					<0.002	2		Irregular
Germanium	ug/L as Ge	Not analyzed in 2009					<0.001	2		Irregular
Gold	mg/L as Au	Not analyzed in 2009					<0.04	10	<0.0000001 - <0.04	Irregular
Hafnium	ug/L as Hf	Not analyzed in 2009					<0.005	2		Irregular
Holmium	ug/L as Ho	Not analyzed in 2009					0.002	2	0.0009 - <0.003	Irregular
Iron	mg/L as Fe	0.04	12	0.021	0.054	≤ 0.3 AO	0.041	92	0.018 - 0.17	12/yr
Lanthanum	mg/L as La	Not analyzed in 2009					<0.02	10	0.000003 - <0.02	Irregular
Lead	ug/L as Pb	<0.2	12	<0.2	0.2	10 MAC	<0.50	91	0.02 - <60	12/yr
Lithium	ug/L as Li	<5	12				<5	45	<0.06 - <5	12/yr
Lutetium	ug/L as Lu	Not analyzed in 2009					<0.0006	2		Irregular
Magnesium	mg/L as Mg	1.19	12	0.66	1.34	No Guideline Required	1.17	92	0.58 - 2.22	12/yr
Manganese	mg/L as Mn	0.006	12	<0.003	0.015	≤ 0.05 AO	0.008	92	<0.003 - 0.041	12/yr
Mercury, Methyl	ng/L as Hg	0.029	4	<0.001	0.048		<0.02	57	<0.01 - 0.087	4/yr
Mercury, Total	ng/L as Hg	0.56	4	<0.36	0.75	0.001 MAC	0.83	57	<0.05 - 1.53	4/yr
Molybdenum	mg/L as Mo	<0.001	12				<0.005	92	<0.00006 - 0.02	12/yr
Neodymium	ug/L as Nd	Not analyzed in 2009					0.012	2	0.004 - <0.02	Irregular
Nickel	mg/L as Ni	<0.001	12				<0.008	92	0.0002 - 0.066	12/yr
Phosphorus	mg/L as P	Not analyzed in 2009					<0.1	67	<0.02 - 0.219	12/yr
Potassium	mg/L as K	0.17	12	0.15	0.21		<1	95	0.006 - 1.09	12/yr
Praseodymium	ug/L as Pr	Not analyzed in 2009					<0.006	2	<0.002 - <0.01	Irregular
Rubidium	ug/L as Rb	Not analyzed in 2009					0.22	2		Irregular
Samarium	ug/L as Sm	Not analyzed in 2009					0.006	2	0.003 - <0.01	Irregular
Scandium	mg/L as Sc	Not analyzed in 2009					<0.05	10	<0.0009 - <0.05	Irregular

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Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum Maximum		≤ Less than or equal to	Ten Year Median	Samples Analyzed	Range Minimum-Maximum	Sampling Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Selenium	mg/L as Se	<0.0001	12			0.01 MAC	<0.001	95	<0.00005 - <0.5	12/yr
Silver	mg/L as Ag	<0.00002	12	<0.00002	0.00002	No Guideline Required	<0.0001	91	<0.00001 - <0.01	12/yr
Sodium	mg/L as Na	1.69	12	1.6	2.50	≤ 200 AO	1.71	95	<0.05 - 2.6	12/yr
Strontium	mg/L as Sr	0.016	12	<0.001	0.021		0.015	92	0.011 - 0.032	12/yr
Tantalum	ug/L as Ta	Not analyzed in 2009					<0.71	2		Irregular
Tellurium (52)	mg/L as Te	Not analyzed in 2009					<0.05	23		Irregular
Thallium	ug/L as Tl	<0.05	12				<0.1	82	0.01 - <30	12/yr
Thorium	ug/L as Th	Not analyzed in 2009					<0.001	2		Irregular
Thulium	ug/L as Tm	Not analyzed in 2009					0.0006	2	0.0001 - <0.001	Irregular
Tin	mg/L as Sn	<0.005	12				<0.02	84	<0.00002 - <0.06	12/yr
Titanium	mg/L as Ti	<0.005	12				<0.003	92	0.0006 - 0.012	12/yr
Tungsten	mg/L as W	Not analyzed in 2009					<0.05	10	0.000005 - <0.07	Irregular
Uranium	ug/L as U	<0.1	12			20 MAC	<0.1	53	<0.005 - <0.1	12/yr
Vanadium	mg/L as V	<0.005	12				<0.005	92	0.00018 - 0.01	12/yr
Ytterbium	ug/L as Yb	Not analyzed in 2009					0.005	2	0.0004 - <0.01	Irregular
Yttrium	ug/L as Yb	Not analyzed in 2009					0.023	2	0.006 - 0.04	Irregular
Zinc	mg/L as Zn	<0.005	12	<0.005	0.02	≤ 5.0 AO	<0.005	92	<0.0005 - 0.046	12/yr
Zirconium	ug/L as Zr	<0.5	12				<5	83	0.0004 - <5.0	12/yr

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Parameter	Units of	Median	Samples	Range		≤ = Less than or equal to	Ten Year	Samples	Range	Sampling	
Name	Measure	Value	Analyzed	Minimum	Maximum		Median	Analyzed	Minimum-Maximum	Frequency	
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion											
Microbial Parameters (< means less than method or instrument can detect)											
Coliform Bacteria											
Coliform, Total	Coliforms/100 mL	62	248	<1	1,414		29	2,486	<1 - 13,900	250/yr	
Coliform, Fecal	CFU/100 mL	Changed to E.coli analysis in 2004					<1	812	<1 - 18	Discontinued	
<i>E. coli</i>	E.coli/100 mL	<1	248	<1	23		<1	1,712	<1 - 165	250/yr	
Coliform, Background	CFU/100 mL	Discontinued in May, 2008					416	2,077	<1 - 109,278	Discontinued	
Heterotrophic /Other Bacteria											
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	550	245	100	6,300	No Guideline Required	420	2,449	<10 - 6,300	250/yr	
Hetero. Plate Count, 35C (2 day)	CFU/1 mL	Discontinued in 2005				No Guideline Required	38	1,219	<1 - 1,500	Discontinued	
<i>Aeromonas</i> species	CFU/100 mL	48	247	L10	1,584		108	1,489	<0.2 - 51,000	Special	
<i>Enterococci</i>	CFU/100 mL	Discontinued in 2003					<1	39	<1 - 9	Discontinued	
Cyanobacterial Toxins											
Anatoxin a	ug/L	Not analyzed in 2009					<0.2	6	<0.16 - <1.0	Special	
Microcystin-LR	ug/L	<0.22	2			1.5 MAC	<0.22	12	<0.083 - <1.0	Special	
Other Microcystins	ug/L	Not analyzed in 2009					<0.16	2		Special	
Parasites											
						No MAC Established					
<i>Cryptosporidium</i> , Total oocysts	oocysts/100 L	0	8			Zero detection desirable	0	206	0 - 1.6	8/yr	
<i>Cryptosporidium</i> , Viable oocysts	oocysts/100 L	0	8			Zero detection desirable	0	206	0 - 1	8/yr	
<i>Giardia</i> , Total cysts	cysts/100 L	0	8			Zero detection desirable	0	206	0 - 1.3	8/yr	
<i>Giardia</i> , Viable cysts	cysts/100 L	0	8			Zero detection desirable	0	206	0 - 0.9	8/yr	
Radiological Parameters (< means less than instrument can detect)											
Gross alpha radiation	Bq/L	<0.015	2	<0.01	<0.02	0.5 (Screening)	<0.02	20	<0.01 - 0.07	2/yr	
Gross beta radiation	Bq/L	0.035	2	<0.02	0.05	1.0 (Screening)	<0.02	20	<0.02 - 0.05	2/yr	

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Parameter	Units of	Median	Samples	Range		≤ Less than or equal to	Ten Year	Samples	Range	Sampling
Name	Measure	Value	Analyzed	Minimum	Maximum		Median	Analyzed	Minimum-Maximum	Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Organic Parameters (< means less than instrument can detect)										
Pesticides/Herbicides										
1,4-DDD	ug/L	<0.01	2				<0.01	9		2/yr
1,4'-DDE	ug/L	<0.01	2				<0.01	20	<0.01 - <0.04	2/yr
1,4'-DDT	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.1	2/yr
2,4,5-T	ug/L	<0.1	2			Guideline Archived	<0.1	20	<0.1 - <0.5	2/yr
2,4,5-TP (Silvex)	ug/L	<0.1	2				<0.1	20	<0.1 - <0.5	2/yr
2,4-D	ug/L	<0.4	2			100 MAC	<0.4	20	<0.4 - <0.5	2/yr
2,4-DB	ug/L	<1.0	2				<1.0	20	<0.5 - <1.0	2/yr
3-Hydroxy Carbofuran	ug/L	<0.2	2				<0.2	20		2/yr
4,4'-DDD	ug/L	<0.03	2				<0.03	20	<0.03 - <0.1	2/yr
4,4'-DDE	ug/L	<0.01	2				<0.01	20	<0.01 - <0.04	2/yr
4,4'-DDT	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.1	2/yr
Alachlor	ug/L	<0.2	2				<0.2	20	<0.2 - <0.3	2/yr
Aldicarb	ug/L	<0.5	2			9.0 MAC	<0.5	20		2/yr
Aldicarb Sulfone	ug/L	<0.3	2				<0.3	20		2/yr
Aldicarb Sulfoxide	ug/L	<0.8	2				<0.8	20		2/yr
Aldrin	ug/L	<0.01	2			0.7 MAC	<0.01	20	<0.01 - <0.04	2/yr
Atrazine	ug/L	<0.1	2			5.0 MAC	<0.1	20	<0.1 - <0.2	2/yr
Azinphos-methyl	ug/L	<1.0	2			20 MAC	<1.0	20	<1.0 - <5.0	2/yr
BHC (alpha)	ug/L	<0.02	2				<0.02	20	<0.02 - <0.03	2/yr
BHC (beta)	ug/L	<0.03	2				<0.03	19	<0.03 - <0.06	2/yr
BHC (delta)	ug/L	<0.01	2				<0.01	20	<0.01 - <1.0	2/yr
Bendiocarb	ug/L	<0.2	2			40 MAC	<0.2	15	<0.2 - <1.0	2/yr
Bromacil	ug/L	<0.2	2				<0.2	20	<0.2 - <1.4	2/yr
Bromoxynil	ug/L	<0.02	2			5.0 MAC	<0.02	14		2/yr
Butylate	ug/L	<0.2	2				<0.2	20		2/yr
Carbaryl	ug/L	<0.2	2			90 MAC	<0.2	20		2/yr
Carbofuran	ug/L	<0.2	2			90 MAC	<0.2	20	<0.2 - <0.3	2/yr
Chlordane (alpha)	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.1	2/yr
Chlordane (gamma)	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.1	2/yr
Chlorfenvinphos	ug/L	<0.4	2				<0.4	20		2/yr
Chlorpropham	ug/L	<1.0	2				<1.0	20		2/yr
Chlorpyrifos	ug/L	<0.02	2			90 MAC	<0.02	20	<0.02 - <0.3	2/yr
Cyanazine	ug/L	<0.4	2			10 MAC	<0.4	4		2/yr
Dematon	ug/L	<0.8	2				<0.8	20		2/yr
Diazinon	ug/L	<0.03	2			20 MAC	<0.03	20	<0.03 - <0.2	2/yr
Dicamba	ug/L	<0.1	2			120 MAC	<0.1	20	<0.1 - <0.5	2/yr
Diclofop-methyl	ug/L	<0.5	2			9.0 MAC	<0.5	4		2/yr
Dieldrin	ug/L	<0.02	2				<0.02	20		2/yr
Dimethoate	ug/L	<0.2	2			20 MAC	<0.2	20	<0.2 - <0.4	2/yr

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Dinoseb	ug/L	<0.4	1			10 MAC	<0.4	3		Special
Dioxacarb	ug/L	<0.8	2				<0.8	20		2/yr
Diquat	ug/L	<1.0	2			70 MAC	<1.0	4		2/Yr
Disulfoton	ug/L	<0.2	2				<0.2	20		2/yr
Endosulfan I	ug/L	<0.01	2				<0.01	20	<0.01 - <0.1	2/yr
Endosulfan II	ug/L	<0.02	2				<0.02	20	<0.02 - <0.04	2/yr
Endosulfan Sulphate	ug/L	<0.02	2				<0.02	20	<0.02 - <0.7	2/yr
Endrin	ug/L	<0.02	2			Guideline Archived	<0.02	20	<0.02 - <0.06	2/yr
Endrin Aldehyde	ug/L	<0.05	2				<0.05	20	<0.05 - <0.2	2/yr
Ethion	ug/L	<0.3	2				<0.3	20		2/yr
Fenitrothion	ug/L	<0.5	2				<0.5	20		2/yr
Fenthion	ug/L	<0.6	2				<0.6	20		2/yr
Fonofos	ug/L	<0.2	2				<0.2	20		2/yr
Glyphosate	ug/L	<1.0	2			280 MAC	<5.5	20	<0.002 - <35	2/yr
Heptachlor	ug/L	<0.02	2			Guideline Archived	<0.02	20	<0.02 - <0.3	2/yr
Heptachlor Epoxide	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.8	2/yr
Hexazinone	ug/L	<0.8	2				<0.8	20		2/yr
Isofenphos	ug/L	<0.4	2				<0.4	20		2/yr
Lindane (BHC-gamma)	ug/L	<0.01	2			Guideline Archived	<0.01	20	<0.01 - <0.04	2/yr
Malathion	ug/L	<0.2	2			190 MAC	<0.2	20	<0.5 - <0.6	2/yr
MCPA	ug/L	<0.1	2				<50	20	<0.1 - <50	2/yr
MCPP	ug/L	<0.1	2				<100	20	<0.1 - <100	2/yr
Methidathion	ug/L	<0.3	2				<0.3	20		2/yr
Methiocarb	ug/L	<0.3	2				<0.3	20		2/yr
Methomyl	ug/L	<0.3	2				<0.3	20		2/yr
Methoxychlor	ug/L	<0.04	2			900 MAC	<0.04	20	<0.04 - <2.0	2/yr
Methyl-Parathion	ug/L	<0.2	2			Guideline Archived	<0.2	20		2/yr
Metolachlor	ug/L	<0.8	2			50 MAC	<0.8	20		2/yr
Mevinphos	ug/L	<0.4	2				<0.4	20		2/yr
Monocrotophos	ug/L	<1.0	2				<1.0	20		2/yr
Nitriiotriacetic acid (NTA)	mg/L	<0.4	2			0.4 MAC	<0.4	4		2/yr
Oxamyl	ug/L	<0.3	2				<0.3	20		2/yr
Parathion	ug/L	<0.2	2			50 MAC	<0.2	20		2/yr
Paraquat	ug/L	<1.0	2			10 MAC	<1.0	2		2/yr
Phorate	ug/L	<0.2	2			2.0 MAC	<0.2	20		2/yr
Phosalone	ug/L	<1.0	2				<1.0	20		2/yr
Phosmet	ug/L	<5.0	2				<5.0	20		2/yr
Picloram	ug/L	<0.1	2			190 MAC	<0.1	20	<0.1 - <0.2	2/yr
Promecarb	ug/L	<0.2	2				<0.2	20		2/yr
Propazine	ug/L	<0.1	2				<0.1	20		2/yr
Propoxur	ug/L	<0.2	2				<0.2	20		2/yr

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TABLE 1. 2009 UNTREATED (RAW) WATER QUALITY AT JAPAN GULCH PLANT

(Guideline values provide reference only for untreated water)

PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum Maximum		≤ = Less than or equal to	Ten Year Median	Samples Analyzed	Range Minimum-Maximum	Sampling Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Simazine	ug/L	<0.1	2			10 MAC	<0.1	20		2/yr
Terbufos	ug/L	<0.5	2			1.0 MAC	<0.5	20	<0.5 - <0.9	2/yr
Tetrachlovinphos	ug/L	<0.2	2				<0.2	20		2/yr
Toxaphene	ug/L	<0.08	2			Guideline Archived	<0.08	20	<0.08 - <3.0	2/yr
Trichlopyr	ug/L	<0.05	1				<0.05	1		Special
Trifluralin	ug/L	<0.03	2			45 MAC	<0.03	3		Special
Polycyclic Aromatic Hydrocarbons (PAH's)										
Acenaphthene	ug/L	<0.4	2			Guideline Archived	<0.4	20		2/yr
Acenaphthylene	ug/L	<0.7	2			Guideline Archived	<0.7	20		2/yr
Acridine	ug/L	<0.3	2			Guideline Archived	<0.3	20		2/yr
Anthracene	ug/L	<0.2	2			Guideline Archived	<0.2	20		2/yr
Benzo(a)anthracene	ug/L	<0.3	2			Guideline Archived	<0.3	20		2/yr
Benzo(a)pyrene	ug/L	<0.01	2			0.01 MAC	<0.01	20	<0.01 - <0.5	2/yr
Benzo(b)fluoranthene	ug/L	<0.6	2			Guideline Archived	<0.6	20		2/yr
Benzo(g,h,i)perylene	ug/L	<0.5	2			Guideline Archived	<0.5	20		2/yr
Benzo(k)fluoranthene	ug/L	<0.5	2			Guideline Archived	<0.5	20		2/yr
Chrysene	ug/L	<0.4	2			Guideline Archived	<0.4	20		2/yr
Dibenz(a,h)anthracene	ug/L	<0.3	2			Guideline Archived	<0.3	20		2/yr
Fluoranthene	ug/L	<0.3	2			Guideline Archived	<0.3	20		2/yr
Fluorene	ug/L	<0.4	2			Guideline Archived	<0.4	20		2/yr
Indeno(1,2,3-c,d)pyrene	ug/L	<0.5	2			Guideline Archived	<0.5	20		2/yr
Naphthalene	ug/L	<0.6	2			Guideline Archived	<0.6	20		2/yr
Phenanthrene	ug/L	<0.3	2			Guideline Archived	<0.3	20		2/yr
Pyrene	ug/L	<0.2	2			Guideline Archived	<0.2	20		2/yr

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(Guideline values provide reference only for untreated water)

PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter	Units of	Median	Samples	Range		≤ Less than or equal to	Ten Year	Samples	Range	Sampling
Name	Measure	Value	Analyzed	Minimum	Maximum		Median	Analyzed	Minimum-Maximum	Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Phenols										
2,3,4,5-Tetrachlorophenol	ug/L	<0.05	2				<0.05	20		2/yr
2,3,4,6-Tetrachlorophenol	ug/L	<0.05	2			100 MAC and ≤ 1.0 AO	<0.05	20		2/yr
2,3,5,6-Tetrachlorophenol	ug/L	<0.05	1				<0.05	1		Special
2,3,4-Trichlorophenol	ug/L	<0.1	2				<0.1	20		2/yr
2,3,5-Trichlorophenol	ug/L	<0.1	2				<0.1	20		2/yr
2,3,6-Trichlorophenol	ug/L	<0.1	2				<0.1	20		2/yr
2,3-Dichlorophenol	ug/L	<0.1	2				<1.0	19	<0.1 - <1.0	2/yr
2,4,5-Trichlorophenol	ug/L	<0.1	2				<0.1	20		2/yr
2,4,6-Trichlorophenol	ug/L	<0.1	2			5.0 MAC and ≤ 2.0 AO	<0.1	20		2/yr
2,4-Dichlorophenol	ug/L	<0.1	2			900 MAC and ≤ 0.3 AO	<1.0	19	<0.1 - <1.0	2/yr
2,4-Dimethylphenol	ug/L	<0.5	2				<2.0	19	<0.5 - <2.0	2/yr
2,4-Dinitrophenol	ug/L	<0.5	2				<10	19	<0.5 - <10	2/yr
2,5-Dichlorophenol	ug/L	<0.1	2				<1.0	19	<0.1 - <1.0	2/yr
2,6-Dichlorophenol	ug/L	<0.1	2				<1.0	19	<0.1 - <1.0	2/yr
2-Chlorophenol	ug/L	<0.1	2				<1.0	19	<0.1 - <1.0	2/yr
2-Methylphenol	ug/L	<0.5	2				<2.0	19	<0.5 - <2.0	2/yr
2-Nitrophenol	ug/L	<0.5	2				<2.0	19	<0.5 - <2.0	2/yr
3,4,5-Trichlorophenol	ug/L	<0.1	2				<0.1	20		2/yr
3,4-Dichlorophenol	ug/L	<0.1	2				<1.0	20	<0.1 - <1.0	2/yr
3,5-Dichlorophenol	ug/L	<0.1	2				<1.0	20	<0.1 - <1.0	2/yr
3-Chlorophenol	ug/L	<0.1	2				<1.0	20	<0.1 - <1.0	2/yr
3-Methylphenol	ug/L	<0.5	2				<0.5	4		2/yr
4,6-Dinitro-2-methylphenol	ug/L	<0.5	2				<10	18	<0.5 - <10	2/yr
4-Chloro-3-Methylphenol	ug/L	<1.0	2				<1.0	6		2/yr
4-Chlorophenol	ug/L	<0.1	2				<1.0	19	<0.1 - <1.0	2/yr
4-Methylphenol	ug/L	<0.5	2				<3.0	19	<0.5 - <3.0	2/yr
4-Nitrophenol	ug/L	<0.5	2				<2.0	19	<0.5 - <2.0	2/yr
Pentachlorophenol	ug/L	<0.05	2			60 MAC and ≤ 30 AO	<0.05	20		2/yr
Phenol	ug/L	<0.5	2				<1.0	19	<0.5 - <1.0	2/yr
Total Phenolics	mg/L	<0.001	2			Guideline Archived	0.001	20	<0.001 - 0.004	2/yr
Total Trichlorophenols	ug/L	<0.1	2				<0.1	19	<0.05 - <0.1	2/yr
Total Tetrachlorophenols	ug/L	<0.05	2				<0.05	20		2/yr
Total Chlorinated Phenols	ug/L	<0.05	2				<0.05	20	<0.05 - <0.1	2/yr

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TABLE 1. 2009 UNTREATED (RAW) WATER QUALITY AT JAPAN GULCH PLANT

(Guideline values provide reference only for untreated water)

PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum Maximum		≤ Less than or equal to	Ten Year Median	Samples Analyzed	Range Minimum-Maximum	Sampling Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Other Synthetic Chemicals										
1,1,1-Trichloroethane	ug/L	<0.1	2				<0.1	20		2/yr
1,1,2,2-Tetrachloroethane	ug/L	<0.2	2				<0.2	20		2/yr
1,1,2-Trichloroethane	ug/L	<0.1	2				<0.1	20		2/yr
1,1-Dichloroethane	ug/L	<0.1	2				<0.1	20		2/yr
1,1-Dichloroethylene	ug/L	<0.1	2			14 MAC	<0.1	19		2/yr
1,2,4-Trichlorobenzene	ug/L	<0.5	2				<0.5	20		2/yr
1,2-Dibromoethane	ug/L	<0.1	2				<0.1	20	<0.005 - <0.1	2/yr
1,2-Dichlorobenzene	ug/L	<0.1	2			200 MAC and ≤ 3.0 AO	<0.1	20		2/yr
1,2-Dichloroethane	ug/L	<0.4	2			5.0 MAC	<0.4	20	<0.005 - <0.4	2/yr
1,2-Dichloroethylene (cis)	ug/L	<0.1	2				<0.1	20		2/yr
1,2-Dichloroethylene (trans)	ug/L	<0.1	2				<0.1	20		2/yr
1,2-Dichloropropane	ug/L	<0.1	2				<0.1	20		2/yr
1,3-Dichlorobenzene	ug/L	<0.1	2				<0.1	20		2/yr
1,3-Dichloropropene (cis)	ug/L	<0.1	2				<0.1	20		2/yr
1,3-Dichloropropene (trans)	ug/L	<0.1	2				<0.1	20		2/yr
1,4-Dichlorobenzene	ug/L	<0.1	2			5.0 MAC and ≤ 1.0 AO	<0.1	20		2/yr
2,4-Dinitrotoluene	ug/L	<0.7	2				<0.7	20		2/yr
2,6-Dinitrotoluene	ug/L	<2.0	2				<2.0	20		2/yr
2-Butanone	ug/L	<5.0	2				<5.0	20		2/yr
2-Chloronaphthalene	ug/L	<0.7	2				<0.7	20		2/yr
2-Hexanone	ug/L	<20	2				<5.0	20	<5.0 - <20	2/yr
2-Methylnaphthalene	ug/L	<3.0	2				<3.0	20		2/yr
2-Nitroaniline	ug/L	<4.0	2				<4.0	20	<4.0 - <5.0	2/yr
3,3'-Dichlorobenzidene	ug/L	<3.0	2				<3.0	20		2/yr
3-Nitroaniline	ug/L	<3.0	2				<3.0	20		2/yr
4-Bromophenyl-phenylether	ug/L	<0.3	2				<0.3	20		2/yr
4-Chloroaniline	ug/L	<5.0	2				<5.0	20		2/yr
4-Chlorophenyl-phenylether	ug/L	<0.4	2				<0.4	20		2/yr
4-Methyl-2-pentanone	ug/L	<2.0	2				<2.0	20		2/yr
4-Nitroaniline	ug/L	<4.0	2				<4.0	20		2/yr
Aminomethylphosphonic Acid (AMPA)	ug/L	<1.0	2				<35	18	<1.0 - <35	2/yr
Aniline	ug/L	<5.0	2				<5.0	20		2/yr
Azobenzene	ug/L	<0.6	2				<0.6	20		2/yr
Benzene	ug/L	<0.1	2			5.0 MAC	<0.1	21	<0.01 - <0.1	2/yr
Benzyl Alcohol	ug/L	<3.0	2				<3.0	20		2/yr
Bis (-2-chloroethoxy)methane	ug/L	<0.6	2				<0.6	20	<0.5 - <0.6	2/yr
Bis (-2-chloroethyl)ether	ug/L	<0.6	2				<0.6	20		2/yr
Bis (2-chloroisopropyl)ether	ug/L	<0.5	2				<0.5	20		2/yr
Bis (2-ethylhexyl) phthalate	ug/L	<0.8	3	<0.8	1.7		<8.0	22	<0.3 - 31	2/yr

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PARAMETER		2009 ANALYTICAL RESULTS				CANADIAN GUIDELINES	TEN YEAR RESULTS (2000-2009)			Target
Parameter Name	Units of Measure	Median Value	Samples Analyzed	Range Minimum Maximum		≤ Less than or equal to	Ten Year Median	Samples Analyzed	Range Minimum-Maximum	Sampling Frequency
mg/L = parts per million ug/L = parts per billion ng/L = parts per trillion										
Bisphenol A (BPA)	ug/L	Not analyzed in 2009					<0.45	2	<0.1 - <0.8	Special
Bromomethane	ug/L	<0.8	2				<0.8	20		2/yr
Butylbenzyl phthalate	ug/L	<9.0	2				<9.0	20		2/yr
Carbon Tetrachloride	ug/L	<0.1	2			5.0 MAC	<0.1	20		2/yr
Chloroethane	ug/L	<0.4	2				<0.4	20		2/yr
Chloromethane	ug/L	<0.4	2				<0.4	19		2/yr
Dibenzofuran	ug/L	<2.0	2				<2.0	20		2/yr
Dibromomethane	ug/L	<0.2	2				<0.2	20		2/yr
Dichlorodifluoromethane	ug/L	<0.2	2				<0.2	20		2/yr
Diethyl phthalate	ug/L	<0.3	2				<0.3	20		2/yr
Dimethyl phthalate	ug/L	<0.6	2				<0.6	20		2/yr
Di-n-butyl phthalate	ug/L	<30	2				<30	20		2/yr
Di-n-ocyl phthalate	ug/L	<0.8	2				<0.8	20		2/yr
Diuron	ug/L	<0.5	2			150 MAC	<0.5	16		2/yr
Ethylbenzene	ug/L	<0.15	2	<0.1	<0.2	≤ 2.4 AO	<0.1	21	<0.01 - <0.2	2/yr
Formaldehyde	mg/L	<0.1	2			No Guideline Required	<0.1	18		2/yr
Hexachlorobenzene	ug/L	<0.4	2				<0.4	20		2/yr
Hexachlorobutadiene	ug/L	<2.0	2				<2.0	20		2/yr
Hexachlorocyclopentadiene	ug/L	<5.0	2				<5.0	20		2/yr
Hexachloroethane	ug/L	<2.0	2				<2.0	20		2/yr
Isophorone	ug/L	<1.0	2				<1.0	20		2/yr
Methylene Chloride	ug/L	<6.0	2			15 MAC (Sep 2010)	<6.0	20		2/yr
Methyl-tert-butyl-ether (MTBE)	ug/L	Not analyzed in 2009				15 AO	<0.5	12		Special
Metribuzin	ug/L	<0.2	2			80 MAC	<0.2	4		2/yr
Monochlorobenzene	ug/L	<0.1	2			80 MAC and ≤ 30 AO	<0.1	20		2/yr
N-nitrosodimethylamine (NDMA)	ug/L	Not analyzed in 2009					<0.002	2	<0.002 - 0.002	Special
Nitrobenzene	ug/L	<0.9	2				<0.9	20	<0.9 - <1.0	2/yr
N-nitroso-di-n-propylamine	ug/L	<8.0	2				<8.0	20		2/yr
N-nitrosodiphenylamine	ug/L	<0.3	2				<0.3	20		2/yr
Styrene	ug/L	<0.1	2				<0.1	20		2/yr
Tetrachloroethylene	ug/L	<0.1	2			30 MAC	<0.1	20		2/yr
Toluene	ug/L	<0.1	2			≤ 24 AO	<0.1	21	<0.01 - <0.1	2/yr
Trichloroethylene	ug/L	<0.1	2			5.0 MAC	<0.1	20		2/yr
Trichlorofluoromethane	ug/L	<0.2	2				<0.2	20		2/yr
Vinyl Chloride	ug/L	<0.2	2			2.0 MAC	<0.2	20		2/yr
o-Xylene	ug/L	Not analyzed in 2009					<0.01	1		Special
m&p-Xylene	ug/L	Not analyzed in 2009					<0.01	1		Special
Xylenes (Total)	ug/L	<0.1	2			≤ 300 AO	<0.1	20		2/yr

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