

**Dongjiang Water Quality for the Period April 2002 - March 2003
as received in Hong Kong at Muk Wu Pumping Station**

General Points

- According to the agreement between the Guangdong authorities and the Hong Kong Government, all water supplied to Hong Kong shall not be inferior to the Class II Standard of the Environmental Quality Standard for Surface Water GB 3838-83 published by the People's Republic of China in 1983.
- All samples are taken at Muk Wu Pumping Station where water from Dongjiang is received. All analyses are conducted at site and at WSD's laboratories by WSD's qualified staff.
- Compliance is based on the annual average of monitoring data in accordance with international practice.
- The Guangdong authorities are building a closed aqueduct to convey water abstracted from Dongjiang to Shenzhen Reservoir. On completion of the closed aqueduct, the Guangdong authorities will strive to enhance the quality of the water delivered to Hong Kong to the Type II Standard of GB 3838-88, which supersedes GB3838-83.
- Section A & B of the closed aqueduct were commissioned on 18.1.2003. The entire system is scheduled to be put into operation on 28.6.2003. Since the new system will bypass the pollution sources along the route from Dongjiang to Shenzhen, the Dongjiang water supplied to Hong Kong will have a better quality. Water quality improvement has been observed after the commissioning of Section A & B. We expect further water quality improvement upon commissioning of the entire system. These will be progressively reflected in the half-yearly updates of the water quality data planned for end 2003 and mid 2004. The full effect will be reflected in the data to be published by end 2004.

No.	Parameters	Unit	GB3838-83 Class II Standard Value	Compliance with GB3838-83 Class II	Monitoring Data (04/2002-03/2003)			GB3838- 88 Type II Standard Value	Compliance with GB3838-88 Type II
					Average	Minimum	Maximum		
1	pH	pH	6.5 - 8.5	✓	7.0	6.7	7.4	6.5 - 8.5	✓
2	Temperature	°C	increase ≤ 3 °C after heat absorption summer maximum < 35 °C	✓	24	14	32	- summer weekly average increase due to human factors ≤ 1 °C - winter weekly average decrease due to human factors ≤ 2 °C	
3	Visible Substances		no foam, no oil film, no debris	(Note 1)	3.7 (Note 1)	1.7 (Note 1)	9.7 (Note 1)	(Note 2)	(Note 1)
4	Colour	Hazen unit	≤ 15	✓	8	<5	15	(Note 2)	
5	Odour	TON	1		No objectionable odour			(Note 2)	✓
6	Dissolved Oxygen	mg/L	≥ 6	✗ (Note 3)	5.3	2.4	9.1	≥ 6	✗
7	Biochemical Oxygen Demand (BOD ₅)	mg/L	≤ 3	✗ (Note 3)	7.1	3.0	11.0	≤ 3	✗
8	Permanganate Value	mg/L	≤ 4	✓	1.7	0.75	2.6	≤ 4	✓
9	Volatile Phenols	mg/L	≤ 0.005	✓	<0.001	<0.001	<0.001	≤ 0.002	✓
10	Total Cyanide	mg/L	≤ 0.05	✓	<0.01	<0.01	<0.01	≤ 0.05 (fishery 0.005)	✓
11	Total Arsenic	mg/L	≤ 0.04	✓	0.001	<0.001	0.002	≤ 0.05	✓
12	Total Mercury	mg/L	≤ 0.0005	✓	<0.00005	<0.00005	<0.00005	≤ 0.00005	✓
13	Total Cadmium	mg/L	≤ 0.005	✓	<0.001	<0.001	<0.001	≤ 0.005 (Note 5)	✓

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					Average	Minimum	Maximum		
14	Chromium (VI)	mg/L	≤ 0.02	✓ (Note 6)	< 0.002 (Note 6)	< 0.002 (Note 6)	<0.002 (Note 6)	≤ 0.05	✓
15	Total Lead	mg/L	≤ 0.05	✓	<0.003	<0.003	0.005	≤ 0.05	✓
16	Total Copper	mg/L	≤ 0.01	✓	0.006	0.004	0.009	≤ 1.0 (fishery 0.01)(Note 7)	✓
17	Petroleum Hydrocarbons	mg/L	≤ 0.3	(Note 8)				≤ 0.05 (Note 4)	(Note 8)
18	Total Coliforms	no./L	≤ 10000	✓	3800	500	22000		
19	Total Phosphorus (as P)	mg/L	(lake 0.1) (Note 9)	(Note 9)	0.27	0.15	0.36	≤ 0.1 (lake 0.025)	✗
20	Total Nitrogen	mg/L	(lake 1.0) (Note 9)	(Note 9)	5.5	3.0	8.0		
21	Sulphate (as SO ₄ ²⁻)	mg/L			20	10	27	≤ 250 (Note 7)	✓
22	Chloride (as Cl ⁻)	mg/L			21	9	30	≤ 250 (Note 7)	✓
23	Soluble Iron	mg/L			0.11 (Note 6)	0.04 (Note 6)	0.26 (Note 6)	≤ 0.3 (Note 7)	✓
24	Total Manganese	mg/L			0.11	0.04	0.37	≤ 0.1 (Note 7)	✗
25	Total Zinc	mg/L			0.02	<0.01	0.03	≤ 1.0 (fishery 0.1) (Note 7)	✓
26	Nitrate (as N)	mg/L			3.8	2.6	5.3	≤ 10	✓
27	Nitrite (as N)	mg/L			0.63	0.073	1.7	≤ 0.1	✗
28	Nonionic Ammonia	mg/L		(Note 10)				≤ 0.02	(Note 10)
29	Kjeldahl Nitrogen	mg/L		(Note 10)				≤ 0.5	(Note 10)
30	Chemical Oxygen Demand (COD _{Cr})	mg/L		(Note 10)				< 15	(Note 10)
31	Fluoride (as F)	mg/L			0.46	0.26	0.64	≤ 1.0	✓
32	Selenium (IV)	mg/L			<0.001 (Note 11)	<0.001 (Note 11)	<0.001 (Note 11)	≤ 0.01	✓
33	Anionic Surfactants	mg/L			<0.1	<0.1	<0.1	≤ 0.2	✓
34	Benzo[a]pyrene	mg/L			<0.00018	<0.00018	<0.00018	≤ 2.5 x 10 ⁻⁶ (Note 5)	(Note 12)

Note:

- (1) WSD monitors turbidity of raw water in nephelometric turbidity units (NTU) instead of visible substances.
- (2) Basic requirements of all surface waters are that all water bodies should not contain the following substances resulting from other than natural causes:
 - a. objectionable sediments;
 - b. objectionable floating debris, scum, oil;
 - c. objectionable colour, odour, taste, turbidity;
 - d. substance harmful or poisonous to human, animal or plant;
 - e. substance supporting objectionable aquatic growths.
- (3) There is no health effect arising from deficiency of dissolved oxygen in raw water. Water becomes fully aerated during treatment. Water treatment processes in Hong Kong are effective for the removal of organic matters as reflected by the biochemical oxygen demand (BOD₅) in Dongjiang Water.
- (4) Lowest detection limits of analytical methods specified in GB3838-88 cannot reach levels required.
- (5) Tentative.

- (6) Analytical results for total chromium/iron.
- (7) Parameter that may be adjusted according to local background characteristics of the water.
- (8) WSD routinely monitors individual hydrocarbons.
- (9) Reference standards specified in GB3838-83 apply to enclosed water bodies e.g. lake, reservoir to prevent eutrophication, and therefore are not applicable to river water quality.
- (10) Consideration will be given for analysis of the parameter on completion of the closed aqueduct.
- (11) Analytical results for total selenium.
- (12) All values are compiled in accordance with requirements stipulated by the current quality assurance protocol of the Water Science Division of WSD. Such protocol and instrument capabilities of WSD cannot permit reporting values to the level specified in the standard. Therefore comparison is not possible.
- (13) \geq - greater than or equal to
- (14) \leq - smaller than or equal to
- (15) $<$ - smaller than
- (16) Cells are left blank for those parameters which have no standard values/no units or for which monitoring data reported by WSD are different from and cannot be compared with the GB standards.
- (17) ✓ - annual averages comply with standards
- (18) ✗ - annual averages not comply with standards