Chemical Waste Treatment Centre
Operation Report
Apr 95 - Sep 95

I. INTRODUCTION

This Operation Report is prepared by EPD for the Environment and Planning Committee (EPC) of the Kwai Tsing District Board. It outlines the activities of the Chemical Waste Treatment Centre (CWTC) and provides a summary of environmental performance of the plant.

The environmental performance summary as shown in Section II of this report covers the result of environmental monitoring from April 95 to September 95.

II. ENVIRONMENTAL PERFORMANCE SUMMARY

Enviropace are required to undertake regular checks on environmental performance of the operation of the plant. These include the following:

- Effluent discharge monitoring
- Stack gas monitoring
- Stabilised residue monitoring

Effluent Discharge

Effluent from the CWTC treatment processes has to meet very strict discharge limits on pollutant concentration. Multiple processes are employed inside the CWTC to treat all liquid wastes to ensure a safe waste management system. Automatic monitoring of pH and temperature are conducted to facilitate immediate warning on any significant change detected in the composition of the effluent, such that prompt corrective response can be effected.

Effluent from the plant is discharged in batches. Each batch is sampled and analyzed, and discharges are permitted only if limits are met. Tables 1 to 6 show the summary of effluent quality from April 95 to September 95. No exceedances in effluent discharge limits were observed.

Stack Gas

Air emissions from the incineration system are closely monitored by a comprehensive management and monitoring programme to ensure that the system is operating safely and in an environmentally acceptable manner.

A continuous monitoring system on key parameters is installed in the incinerator stack to ensure combustion and air pollutant removal processes are functionally well. Furthermore, the incinerator is equipped with an automatic waste feed cut-off system. In the event that the continuous monitoring system picks up any potential sign of exceedance of any of the control parameters, waste feed to the incinerator will be stopped automatically. The result for Stack Gas Monitoring from April 95 to September 95 are attached in Tables 7 to 12 and compliance in all stack gas control parameters has been achieved.

Stabilised Residue

All solid wastes and process residues at the CWTC are detoxified, chemically stabilized and physically immobilized to an environmentally benign state. Samples of the stabilized materials have to pass a series of analytical tests, proven to be innocuous before being sent to an off-site landfill for final disposal.

The summaries of result for Stabilized Residue from April 95 to September 95 are attached in Tables 13 to 18. All of the test parameters fell within the control limits and no exceedances occurred.

Table 1

Chemical Waste Treatment Centre
Effluent Discharge Summary（April 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	7.1 - 9.6	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜80	N/A
Total Phosphate (mg/l)	10	＜9.2	N/A
Total Sulphate (mg/l)	2000	1130.3 – 1916.5	1602.5
Total Sulphides (mg/l)	10	＜1	N/A
Total Cyanide (mg/l)	0.1	＜0.04	N/A
Total Suspended Solids (mg/l)	100	＜70	N/A
Oil and Grease (mg/l)	20	＜15.2	N/A
Total Phenols (mg/l)	0.5	＜0.34	N/A
Total Residual Chlorine (mg/l)	1	＜1	N/A
Anionic Detergents (mg/l)	15	＜12.7	N/A
Temperature (^{o}C)	43	21 – 30	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.5	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.3	
Copper (mg/l)	2	＜1.36	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.5	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜1	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1.45	
Total Toxic Metals # (mg/l)	10	＜8.61	
Boron (mg/l)	5	＜3.7	
Iron (mg/l)	10	＜5	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 2

Chemical Waste Treatment Centre
Effluent Discharge Summary（May 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	7.0 - 9.1	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜37.5	N/A
Total Phosphate (mg/l)	10	＜8	N/A
Total Sulphate (mg/l)	2000	870.7 – 1227.3	1018.3
Total Sulphides (mg/l)	10	＜1	N/A
Total Cyanide (mg/l)	0.1	＜0.06	N/A
Total Suspended Solids (mg/l)	100	＜83.5	N/A
Oil and Grease (mg/l)	20	＜15	N/A
Total Phenols (mg/l)	0.5	＜0.3	N/A
Total Residual Chlorine (mg/l)	1	＜0.8	N/A
Anionic Detergents (mg/l)	15	5.0 – 10.2	7.9
Temperature (^{o}C)	43	28 - 35	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.1	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.3	
Copper (mg/l)	2	＜1.2	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.2	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜0.4	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1	
Total Toxic Metals # (mg/l)	10	＜7.2	
Boron (mg/l)	5	＜3.2	
Iron (mg/l)	10	＜2	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 3

Chemical Waste Treatment Centre
Effluent Discharge Summary（June 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	6.4 - 9.7	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜45.7	N/A
Total Phosphate (mg/l)	10	＜2	N/A
Total Sulphate (mg/l)	2000	624.7 – 1816.7	1324
Total Sulphides (mg/l)	10	＜2	N/A
Total Cyanide (mg/l)	0.1	＜0.03	N/A
Total Suspended Solids (mg/l)	100	＜97.6	N/A
Oil and Grease (mg/l)	20	＜15	N/A
Total Phenols (mg/l)	0.5	＜0.1	N/A
Total Residual Chlorine (mg/l)	1	＜0.8	N/A
Anionic Detergents (mg/l)	15	＜8.6	N/A
Temperature (^{o}C)	43	23.2 – 35	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.1	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.3	
Copper (mg/l)	2	＜1.95	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.29	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜0.4	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1	
Total Toxic Metals # (mg/l)	10	＜8.2	
Boron (mg/l)	5	＜3.84	
Iron (mg/l)	10	＜2	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 4

Chemical Waste Treatment Centre
Effluent Discharge Summary（July 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	6.2 - 9.4	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜29.7	N/A
Total Phosphate (mg/l)	10	＜2	N/A
Total Sulphate (mg/l)	2000	887.2 – 1653	1307.3
Total Sulphides (mg/l)	10	＜2	N/A
Total Cyanide (mg/l)	0.1	＜0.04	N/A
Total Suspended Solids (mg/l)	100	＜86	N/A
Oil and Grease (mg/l)	20	＜15	N/A
Total Phenols (mg/l)	0.5	＜0.35	N/A
Total Residual Chlorine (mg/l)	1	＜0.68	N/A
Anionic Detergents (mg/l)	15	＜4.2	N/A
Temperature (^{o}C)	43	22 – 39	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.1	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.89	
Copper (mg/l)	2	＜1.3	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.2	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜0.4	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1	
Total Toxic Metals # (mg/l)	10	＜7.45	
Boron (mg/l)	5	＜4.57	
Iron (mg/l)	10	＜2	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 5

Chemical Waste Treatment Centre
Effluent Discharge Summary（August 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	7.1 - 9.7	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜36.6	N/A
Total Phosphate (mg/l)	10	＜2	N/A
Total Sulphate (mg/l)	2000	594.4 – 1787.2	1104.3
Total Sulphides (mg/l)	10	＜1	N/A
Total Cyanide (mg/l)	0.1	＜0.1	N/A
Total Suspended Solids (mg/l)	100	＜97.7	N/A
Oil and Grease (mg/l)	20	＜15	N/A
Total Phenols (mg/l)	0.5	＜0.35	N/A
Total Residual Chlorine (mg/l)	1	＜0.95	N/A
Anionic Detergents (mg/l)	15	＜5.5	N/A
Temperature (^{o}C)	43	22 – 41	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.1	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.3	
Copper (mg/l)	2	＜1.83	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.2	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜0.4	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1	
Total Toxic Metals # (mg/l)	10	＜7.7	
Boron (mg/l)	5	＜2.6	
Iron (mg/l)	10	＜2	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 6

Chemical Waste Treatment Centre
Effluent Discharge Summary（September 1995）

Parameters	Control Limits	Result	Mean
pH	6-10	6.7 - 9.8	N/A
Total Kjeldahl Nitrogen (mg/l)	100	＜44.8	N/A
Total Phosphate (mg/l)	10	＜2	N/A
Total Sulphate (mg/l)	2000	464.9 – 1504	988.3 mg/1
Total Sulphides (mg/l)	10	＜1	N/A
Total Cyanide (mg/l)	0.1	＜0.08	N/A
Total Suspended Solids (mg/l)	100	＜80	N/A
Oil and Grease (mg/l)	20	＜15	N/A
Total Phenols (mg/l)	0.5	＜0.23	N/A
Total Residual Chlorine (mg/l)	1	＜0.76	N/A
Anionic Detergents (mg/l)	15	＜4.87	N/A
Temperature (^{o}C)	43	29 – 41	N/A
Floatable Substances (mg/l)	Not to be detected	Not detected	Not detected
Toxic Metals :			
Arsenic (mg/l)	2	＜0.1	N/A
Barium (mg/l)	5	＜1	
Cadmium (mg/l)	0.1	＜0.1	
Chromium (mg/l)	1	＜0.3	
Copper (mg/l)	2	＜1.92	
Lead (mg/l)	2	＜1	
Manganese (mg/l)	5	＜0.2	
Mercury (mg/l)	0.05	＜0.05	
Nickel (mg/l)	2	＜1	
Silver (mg/l)	2	＜0.4	
Tin (mg/l)	5	＜1	
Zinc (mg/l)	2	＜1	
Total Toxic Metals # (mg/l)	10	＜8.07	
Boron (mg/l)	5	＜4.14	
Iron (mg/l)	10	＜2	N/A

Parameters	Control Limits	Result	Mean
Pesticides：			
Aldrin (mg/l)	0.01	＜0.01	N/A
BHCS (mg/l)	0.01	＜0.01	
DDT (mg/l)	0.01	＜0.01	
Semi-volatile Compounds：			
Benzo (A) Pyrene (mg/l)	0.1	＜0.1	N/A
Volatile Compounds：			
1,1,1-Trichloroethane (mg/l)	0.05	＜0.05	N/A
Polychlorinated Biphenyls：			
Total PCBs (mg/l)	0.003	＜0.003	N/A
Radioactive Substances：			
Gross β (pc/l)	10000	＜10000	N/A
Radium-226 (pc/l)	30	＜30	
Strontium-90 (pc/l)	100	＜100	

Total toxic metals include: Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Tin, Zinc.

Table 7

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（April 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	3.7	N/A
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜4.2	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.4	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	25.3	N/A
Sulphur Dioxide (mg/m^3)	750	258.5	N/A
Hydrochloric Acid (mg/m^3)	38	7.3	N/A
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.7	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜0.9	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜0.9	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.034	
Antimony (mg/m^3)	3	＜0.335	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.335	N/A
Copper (mg/m^3)	10	＜0.335	
Arsenic (mg/m^3)	10	＜0.002	
Nickel (mg/m^3)	10	＜0.335	
Chromium (mg/m^3)	10	＜0.034	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.411	N/A
Dioxin (ng/m^3)	0.1	Note (1)	N/A

Note: (1) Incinerator shutdown.

Table 8

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（May 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	1.9 – 3.3	2.2
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜3.1	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.3	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	7.7 - 17.2	12.6
Sulphur Dioxide (mg/m^3)	750	97.4 – 269.5	160.2
Hydrochloric Acid (mg/m^3)	38	10.8 – 30.8	19.5
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.2	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜0.8	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜1.8	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.025	
Antimony (mg/m^3)	3	＜0.250	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.250	N/A
Copper (mg/m^3)	10	＜0.250	
Arsenic (mg/m^3)	10	＜0.001	
Nickel (mg/m^3)	10	＜0.250	
Chromium (mg/m^3)	10	＜0.025	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.050	N/A
Dioxin (ng/m^3)	0.1	0.0069	N/A

Table 9

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（June 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	1.7 – 3.9	4.5
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜5.1	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.5	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	11.5 – 23.7	16.3
Sulphur Dioxide (mg/m^3)	750	130.5 – 199.7	164.2
Hydrochloric Acid (mg/m^3)	38	8.7 – 21.8	13.3
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.8	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜1.1	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜1.1	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.035	
Antimony (mg/m^3)	3	＜0.354	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.354	N/A
Copper (mg/m^3)	10	＜0.354	
Arsenic (mg/m^3)	10	＜0.002	
Nickel (mg/m^3)	10	＜0.354	
Chromium (mg/m^3)	10	＜0.035	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.489	N/A
Dioxin (ng/m^3)	0.1	0.0177	N/A

Table 10

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（July 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	0.1 – 1.2	0.7
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜3.3	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.3	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	8 – 22.6	14.2
Sulphur Dioxide (mg/m^3)	750	56.5 – 143.1	108.9
Hydrochloric Acid (mg/m^3)	38	8.1 – 13.2	11.3
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.3	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜0.9	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜0.8	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.026	
Antimony (mg/m^3)	3	＜0.264	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.264	N/A
Copper (mg/m^3)	10	＜0.264	
Arsenic (mg/m^3)	10	＜0.001	
Nickel (mg/m^3)	10	＜0.264	
Chromium (mg/m^3)	10	＜0.026	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.112	N/A
Dioxin (ng/m^3)	0.1	0.0036 - 0.0178	0.0107

Table 11

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（August 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	1	N/A
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜2.5	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.3	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	10.1	14.2
Sulphur Dioxide (mg/m^3)	750	51.4	108.9
Hydrochloric Acid (mg/m^3)	38	12.7	11.3
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.5	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜0.7	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜0.7	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.030	
Antimony (mg/m^3)	3	＜0.300	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.300	N/A
Copper (mg/m^3)	10	＜0.300	
Arsenic (mg/m^3)	10	＜0.001	
Nickel (mg/m^3)	10	＜0.300	
Chromium (mg/m^3)	10	＜0.030	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.262	N/A
Dioxin (ng/m^3)	0.1	Note (1)	N/A

Note: (1) Incinerator shutdown.

Table 12

Chemical Waste Treatment Centre
Stack Gas Monitoring Summary（September 1995）

Parameters	Control Limits	Result	Mean
Particulates (mg/m^3)	75	0.3 - 1.4	0.93
Chlorine and Compounds (as Cl_2) (mg/m^3)	100	＜4.9	N/A
Fluorine and Compounds (as HF) (mg/m^3)	25	＜0.4	N/A
Hydrogen Sulphide (mg/m^3)	5	Not detected	N/A
Acidity (as Sulphuric Acid) (mg/m^3)	100	4.2 – 19.9	13.9
Sulphur Dioxide (mg/m^3)	750	49.1 – 339.9	154.7
Hydrochloric Acid (mg/m^3)	38	8.4 – 10.3	9.5
Total Phosphorus (as P) (mg/m^3)	7.5	＜1.4	N/A
Hydrogen Fluoride (mg/m^3)	7.5	＜1	N/A
Hydrogen Bromide (mg/m^3)	7.5	＜2.5	N/A
Toxic Metals I :			
Mercury (mg/m^3)	3	＜0.002	N/A
Cadmium (mg/m^3)	3	＜0.028	
Antimony (mg/m^3)	3	＜0.284	
Toxic Metals II :			
Lead (mg/m^3)	10	＜0.284	N/A
Copper (mg/m^3)	10	＜0.284	
Arsenic (mg/m^3)	10	＜0.001	
Nickel (mg/m^3)	10	＜0.284	
Chromium (mg/m^3)	10	＜0.028	
Total of Toxic Metals I & II (mg/m^3)	10	＜1.197	N/A
Dioxin (ng/m^3)	0.1	0.0237	N/A

Table 13

Chemical Waste Treatment Centre
Stabilised Materials Summary（April 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	9.8 – 12.9	N/A
% Solids (%)	30 (lower limit)	42.6 – 100	78.9
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.5	N/A
Mercury (ppm)	0.1	＜0.1	
Total Chromium (ppm)	10	＜1	
Copper (ppm)	—	＜11.5	
Nickel (ppm)	—	＜1.1	
Lead (ppm)	—	＜17.7	
Zinc (ppm)	—	＜14	
Total of copper, nickel, lead, zinc (ppm)	25	＜21.9	
Iron (ppm)	20	＜5	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜3.4	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜8.8	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A

Table 14

Chemical Waste Treatment Centre
Stabilised Materials Summary（May 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	11.3 – 12.8	N/A
% Solids (%)	30 (lower limit)	43.4 – 100.3	89.2
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.5	N/A
Mercury (ppm)	0.1	＜0.1	
Total Chromium (ppm)	10	＜1	
Copper (ppm)	—	＜9.9	
Nickel (ppm)	—	＜1	
Lead (ppm)	—	＜5.6	
Zinc (ppm)	—	＜10.7	
Total of copper, nickel, lead, zinc (ppm)	25	＜22.6	
Iron (ppm)	20	＜8.6	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜4.3	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜8.3	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A

Table 15

Chemical Waste Treatment Centre
Stabilised Materials Summary（June 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	10.6 - 13	N/A
% Solids (%)	30 (lower limit)	38.1 – 100	91.9
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.05	N/A
Mercury (ppm)	0.1	＜0.06	
Total Chromium (ppm)	10	＜0.5	
Copper (ppm)	—	＜14.8	
Nickel (ppm)	—	＜0.8	
Lead (ppm)	—	＜9.3	
Zinc (ppm)	—	＜4.3	
Total of copper, nickel, lead, zinc (ppm)	25	＜18.5	
Iron (ppm)	20	＜13.5	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜2.5	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜4.9	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A

Table 16

Chemical Waste Treatment Centre
Stabilised Materials Summary（July 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	10.8 – 12.6	N/A
% Solids (%)	30 (lower limit)	47.3 – 100.1	89.2
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.05	N/A
Mercury (ppm)	0.1	＜0.02	
Total Chromium (ppm)	10	＜0.5	
Copper (ppm)	—	＜14.9	
Nickel (ppm)	—	＜0.5	
Lead (ppm)	—	＜5.9	
Zinc (ppm)	—	＜7.6	
Total of copper, nickel, lead, zinc (ppm)	25	＜17.4	
Iron (ppm)	20	＜1	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜2.1	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜2.5	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A

Table 17

Chemical Waste Treatment Centre
Stabilised Materials Summary（August 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	8.3 – 12.4	N/A
% Solids (%)	30 (lower limit)	47.3 - 99	81.5
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.35	N/A
Mercury (ppm)	0.1	＜0.04	
Total Chromium (ppm)	10	＜0.5	
Copper (ppm)	—	＜8.6	
Nickel (ppm)	—	＜0.51	
Lead (ppm)	—	＜8.9	
Zinc (ppm)	—	＜8.7	
Total of copper, nickel, lead, zinc (ppm)	25	＜18.8	
Iron (ppm)	20	＜15.7	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜1.5	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜2	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A

Table 18

Chemical Waste Treatment Centre
Stabilised Materials Summary（September 1995）

Parameters	Control Limits	Result	Mean
Section A			
pH (water)	8 (lower limit)	10.5 – 12.8	N/A
% Solids (%)	30 (lower limit)	47.3 – 100.2	83.9
Toxic Metals：			
Cadmium (ppm)	0.5	＜0.05	N/A
Mercury (ppm)	0.1	＜0.02	
Total Chromium (ppm)	10	＜1.2	
Copper (ppm)	—	＜17	
Nickel (ppm)	—	＜1.1	
Lead (ppm)	—	＜22	
Zinc (ppm)	—	＜9	
Total of copper, nickel, lead, zinc (ppm)	25	＜24	
Iron (ppm)	20	＜6.4	N/A
Sulphide (ppm)	10	＜5	N/A
Ammoniacal Nitrogen (ppm)	10	＜2.8	N/A
Cyanide (ppm)	5	＜5	N/A
Section B			
Volatile Organic Contents (ppm)	5000	＜15	N/A
Total Organic Halides (ppm)	10	＜2	N/A
Total Chloro Phenols (ppm)	2	＜2	N/A
Polychlorinated Biphenyls (ppm)	1	＜1	N/A
TCDD equivalent (ITEF method) (ppb)	1	＜1	N/A