

FORMAL MONITORING PROGRAMME

1994

EC DANGEROUS SUBSTANCES DIRECTIVE

ENVIRONMENT AGENCY



042450

FORMAL MONITORING PROGRAMME 1994

DANGEROUS SUBSTANCES DIRECTIVE

1. Introduction

1.1 General

A Direction was issued to the NRA by the Secretary of State for the Environment on 2nd January, 1990 and a subsequent Direction on 9th February, 1993 which relate to the implementation of the EC Directives on Dangerous Substances. They impose a duty on the NRA to include conditions on discharge consents which will ensure compliance with the obligations of the directives, to establish monitoring procedures, to sample controlled waters, and to furnish the DoE with information on an annual basis.

1.2 Monitoring

Monitoring is to be undertaken in waters receiving discharges of List I substances from sites identified in annual returns sent to the DoE. These sites include all industrial plants liable to handle and discharge these substances, and discharges of these substances from sewage treatment works and sewers. Hence monitoring is carried out for all consented discharges, and sewage treatment works known to receive consented trade effluent discharges of List I substances. Samples should be taken sufficiently close to the discharge point to be representative of the aquatic environment affected by the discharge. The NRA Monitoring Manual stipulates that samples should be taken at a minimum frequency of once per month. Environmental monitoring is also to be undertaken for all List I substances.

1.3 List II Substances

A National Programme for the control of List II substances as required by the EC Dangerous Substances Directive has been defined by DoE Circular 7/89. Environmental Quality Standards have been established for a number of List II substances. The monitoring programme has to demonstrate that these standards are being achieved in watercourses receiving discharges of List II substances.

1.3 Reporting

The NRA is required under the Direction to submit a range of information in its annual returns to the DoE. The information includes an inventory of discharges of dangerous substances and relevant consent details, the results of monitoring of the receiving waters and sediments, and the results of environmental monitoring. Reasons for non-compliance with relevant standards must also be reported together with proposed remedial measures.

The NRA acts as an agent for the DoE with respect to the collation of information on

discharges of List I substances to sewer. This information is provided by the Water Utilities in accordance with the Sewerage Undertakers (Information) Direction 1991.

Returns to NRA Head Office must be made for List I and List II substances on an annual basis before the end of March.

2 Water Column Monitoring

2.1 Specific Discharges

A total of 100 sampling sites are used to monitor the effects of 101 discharges which contain, or are likely to contain, one or more List I substances. The discharges and associated monitoring points for mercury, cadmium, HCH, pentachlorophenol, chloroform, and trichloroethylene are shown in Tables 1 to 6 respectively. The frequency of sampling is monthly, and the sampling resource and relevant analytical suites are summarised in the table below.

Substance	No. Discharges	No. Sites	Analysis			
			EC-Hg	EC-Cd	EC-HCH	List I
Mercury	31	30	360			
Cadmium	63	63		756		
HCH	2	2			24	
Pentachlorophenol	1	1				12
Chloroform	2	2				24
Trichloroethylene	2	2				24
Total	101	100	360	756	24	36*

* Includes mutually inclusive sites

The environmental quality standards which apply in receiving waters for each substance are given in Table 9.

2.7 List II Substances

There are a total of 35 discharges consented for List II substances. 31 of these discharges are to freshwater, and 4 are to saline water (Table 7).

A total of 31 sites are used to monitor the effect of these discharges. The frequency of sampling is monthly, giving an annual total of 372 samples. Samples are analysed for the analytical suite LIST 2.

The environmental quality standards which apply in receiving waters for List II substances are given in Table 10.

2.8 Environmental Monitoring

Environmental monitoring is carried out at 43 sites throughout the region for all List I and List II substances. Six of these sites are on the tidal Thames (Table 8).

Frequency of sampling is monthly, giving an annual total of 516 samples. Samples are analysed for the analytical suite KEY.

3 Sediment Monitoring

3.1 General

Under the terms of the Dangerous Substances Directive, a "standstill" provision is to be applied to certain List I substances. That is, the concentration in sediments and/or molluscs and/or shellfish and/or fish must not increase significantly with time. To show there is a standstill, relevant data must be sent to the DoE. To meet this requirement a sediment sampling programme has been implemented (Appendix 1). Samples are taken by staff from the Biology Department.

3.2 Sampling Sites

3.2.1 Specific Discharges

A total of 16 freshwater sediment sites are monitored downstream of discharges which contain, or are likely to contain cadmium, and are given in Appendix 1, Tables 1 and 2. A further 9 freshwater sediment sites are monitored below discharges containing both cadmium and mercury. The respective analytical suites for cadmium and mercury are **CDSED** and **HGSED** and are given in Appendix 1, Tables 4 and 5.

5 freshwater sediment sites downstream of complex discharges are monitored for a range of metals and organic substances which are included in the **SED** analytical suite (Appendix 1, Table 6).

The frequency of sampling is once per annum, giving an annual total of 30 samples for the monitoring of specific discharges.

3.2.2 Environmental Monitoring

Environmental monitoring is carried out at 24 freshwater sediment sites for both List I and List II substances (Appendix 1, Tables 1 and 2). Samples are analysed for the analytical suite **SED**.

Frequency of sampling is once per annum, giving an annual total of 24 samples.

3.2.3 Tideway

A total of 21 sediment sites on the tidal Thames are monitored for both List I and List II substances (Appendix 1, Table 3). 11 of these sites are used to monitor the effects of specific discharges.

Samples are analysed for the analytical suite SED. Frequency of sampling is annual, giving an annual total of 21 samples.

5 Effluent Monitoring

A programme has been implemented for monitoring dangerous substances in effluents from water utilities sewage treatment works (Table 11). The programme is based on

1. Those works which are consented for one or more List I or List II substances (Table 12);
2. Those works which are included in the dangerous substances returns sent to DoE on the basis of trade effluent returns received from the water companies;
3. Those works which are considered to be of significant size and warrant further investigation.

Samples are analysed for the analytical suites List 1 and List 2E. Frequency of sampling is monthly or quarterly. Exceptions are those discharges which are consented for dangerous substances where the frequency is increased in line with normal consent monitoring for other parameters.

An annual total of 732 effluent samples are analysed for cadmium, 224 samples for List 1 analysis, and 394 samples for List 2E analysis.

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Senior Scientist
Scientific Department

November, 1994

**Table 1: EC DANGEROUS SUBSTANCES DIRECTIVE
MERCURY 1994**

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Abingdon STW	PTHR.0152	Odhay Hill Ditch above Ginge Brook	1.4	12
High Wycombe STW	PWYE.0013	Wye at King George V	1.0	12
Princes Risborough STW	PTAR.0164	Horsenden Stream at B4009	1.5	12
Reading STW	PKER.0039	Kennet at Berkeley Avenue	2.0	12
Rodbourne STW	PUTR.0069	Ray, Moredon Bridge Swindon	2.0	12
Sandford STW	PTHR.0048	Northfield Brook, Sandford	0.9	12
Aldershot STW	PLDR.0002	Blackwater us A'shot Mltry STW	2.4	12
Ash Vale STW	PLDR.0008	Blackwater at Colford Bridge	2.5	12
Basingstoke STW	PLDR.0073	Loddon at Keepers Cottage, Wildmoor	0.9	12
Camberley STW	PLDR.0135	Blackwater at A30 Roadbridge, Blackwater	0.8	12
Crawley STW	PMLR.0012	Gatwick Stream us Pond E	0.1	12
Dorking STW	PMLR.0020	Mole us Pipp Brook	0.3	12
Esher STW	PMLR.0243	Ember at rear of Grove Way, Ember	0.8	12
Horley STW	PMLR.0035	Mole at Wick Farm, Horley	2.2	12
Slough STW	PTHR.0008	Boveney Ditch us Thames	1.9	12
Bishops Stortford STW	PLER.0039	Gt. Hallinbury Brook above Stort	0.5	12
Blackbirds STW	PCNR.0026	Colne, Bushey Mill Lane	4.0	12
Deephams STW	PLER.0130	Salmon Bk us Enfield Dt	0.9	12
Luton STW	PLER.0061	Lee at East Hyde Bridge	0.8	12
Maple Lodge STW	PCNR.0186	GUC at Coppermill Lane, Harefield	0.8	12
Rye Meads STW	PLER.0060	Lee, Dobbs weir	2.2	12
Beddington STW	PWAR.0067	Wandle, Watermeads Mitcham	2.9	12
Beckton STW	PTTR.0016	Thames at Woolwich		12
Beckton STW	PTTR.0017	Thames at N. Outfall		12
Crossness STW	PTTR.0018	Thames at S. Outfall		12
Crossness STW	PTTR.0019	Thames at Erith		12
Riverside STW	PTTR.0018	Thames at S. Outfall		12
Riverside STW	PTTR.0019	Thames at Erith		12
Long Reach STW	PTTR.0019	Thames at Erith		12
Long Reach STW	PTTR.0020	Thames at Greenhithe		12
Northfleet STW	PTTR.0020	Thames at Greenhithe		12
Northfleet STW	PTTR.0021	Thames at Gravesend		12
Britannia Refined Metals	PTTR.0020	Thames at Greenhithe		12
Britannia Refined Metals	PTTR.0021	Thames at Gravesend		12
Northfleet Cement Works	PTTR.0020	Thames at Greenhithe		12
Northfleet Cement Works	PTTR.0021	Thames at Gravesend		12
Tilbury STW	PTTR.0021	Thames at Gravesend		12
Tilbury STW	PTTR.0022	Thames at Ovens Buoy		12
Cleanaway STW	PTNR.0066	Holehaven Creek at Fobbing Horse Barrier	0.9	12

Total Discharges = 31

Total Sites = 30

360

**Table 2: EC DANGEROUS SUBSTANCES DIRECTIVE
CADMIUM 1994**

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Abingdon STW	PTHR.0152	Odhay Hill Ditch above Ginge Brook	1.4	12
AWE, Aldermaston	PTHR.0121	Thames above Mapledurham Weir	2.5	12
Aylesbury STW	PTAR.0020	Thame us Eythrope Lake	2.0	12
Calvert Landfill Site	PCHR.0173	Muxwell Brook below Calvert Landfill Site	0.2	12
Cricklade STW	PUTR.0093	Thames at Eysey	0.6	12
Culham STW	PTHR.0221	Clifton Hampden Ditch above Thames	0.8	12
High Wycombe STW	PWYR.0016	Wye at King George V	1.0	12
Princes Risborough STW	PTAR.0164	Horsenden Stream at B4009	1.5	12
Reading STW	PKER.0039	Kennet, Berkeley Av Reading	2.0	12
Rodbourne STW	PUTR.0069	Ray, Moredon Bridge Swindon	2.0	12
Sandford STW	PTHR.0048	Northfield Brook, Sandford	0.9	12
UKAEA, Harwell	PTHR.0105	Thames at Sutton Bridge	0.6	12
Wargrave STW	PLDR.0032	Loddon, Loddon Drive Wargrave	0.9	12
Aldershot STW	PLDR.0002	Blackwater us A'Shot Mltry STW	2.4	12
Ash Vale STW	PLDR.0008	Blackwater at Colford Bridge	2.5	12
Basingstoke STW	PLDR.0073	Loddon, Keepers Cottage Wildmoor	0.9	12
Beddington STW	PWAR.0067	Wandle, Watermeads Mitcham	2.9	12
Bracknell STW	PTHR.0168	Cut at Cokeley Bridge	1.5	12
Camberley STW	PLDR.0135	Blackwater at A30 Roadbridge, Blackwater	0.8	12
Chertsey STW	PBNR.0001	Bourne N, Hamperstone Bridge	2.7	12
Chobham STW	PBNR.0004	Bourne S, Mimbridge Chobham	3.1	12
Crawley STW	PMLR.0012	Gatwick Stream us Pond E	0.1	12
Dorking STW	PMLR.0020	Mole us Pipp Brook	0.3	12
Esher STW	PMLR.0243	Ember at Rear of Grove Way, Ember	0.8	12
Fleet STW	PLDR.0063	Fleet Brook below Fleet Stw	0.1	12
Godalming STW	PWER.0151	Wey above Cranleigh Waters	1.2	12
Guildford STW	PWER.0033	Wey at Burpham Court Bridge	2.1	12
Hogsmill STW	PHMR.0010	Hogsmill us Thames	1.5	12
Horley STW	PMLR.0035	Mole at Wick Farm, Horley	2.2	12
Leatherhead STW	PMLR.0033	Mole, Stoke D'Abernon Br	2.5	12
Maidenhead STW	PTHR.0038	Maidenhead Ditch, Hibbert Road Bray	1.2	12
Reigate STW	PMLR.0010	Earlswood Brook, us Mole	1.1	12
Sandhurst STW	PLDR.0012	Blackwater ds Sandhurst STW	2.6	12
Slough STW	PTHR.0008	Boveney Ditch us Thames	1.9	12
Windsor STW	PTHR.0063	Thames 1Km ds Windsor STW	1.0	12
Wisley STW	PWER.0038	Wey, Plough Br Byfleet	3.0	12
Woking STW	PWER.0133	Wey ds Woking Stw	0.2	12
Wokingham STW	PLDR.0124	Ashridge Stream at Toutley Road	1.4	12
Berkhamstead STW	PCNR.0047	Guc 1500m ds Berkhamstead Stw	1.3	12
Bishops Stortford STW	PLER.0039	Gt. Hallingbury Brook above Stort	0.5	12
Blackbirds STW	PCNR.0026	Colne, Bushey Mill Lane	4.0	12
Brentwood STW	PRGR.0021	Ingrebourne, Harold Court Rd	0.1	12
Chesham STW	PCNR.0014	Chess, Bois Mill Chesham	0.3	12
Deephams STW	PLER.0130	Salmon Bk us Enfield Dt	0.9	12
Gemala Battery Co. Ltd.	PTNR.0010	Goresbrook at Horseshoe Sluice	1.8	12
Luton STW	PLER.0061	Lee, E Hyde Br	0.8	12
Maple Lodge STW	PCNR.0186	Guc at Coppermill Lane, Harefield	0.8	12
Mill Green STW	PLER.0065	Lee, Holwell Brook	3.6	12
Rye Meads STW	PLER.0060	Lee, Dobbs Weir	2.2	12

**Table 2: EC DANGEROUS SUBSTANCES DIRECTIVE
CADMIUM 1994**

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Mogden STW	PTTR.0002	Thames at Richmond		12
Mogden STW	PTTR.0003	Thames at Isleworth		12
Kew STW	PTTR.0006	Thames at Barnes		12
Beckton STW	PTTR.0016	Thames at Woolwich		12
Beckton STW	PTTR.0017	Thames at N. Outfall		12
Crossness STW	PTTR.0018	Thames at S. Outfall		12
Crossness STW	PTTR.0019	Thames at Erith		12
Riverside STW	PTTR.0018	Thames at S. Outfall		12
Riverside STW	PTTR.0019	Thames at Erith		12
Long Reach STW	PTTR.0019	Thames at Erith		12
Long Reach STW	PTTR.0020	Thames at Greenhithe		12
Britannia Refined Metals	PTTR.0020	Thames at Greenhithe		12
Britannia Refined Metals	PTTR.0021	Thames at Gravesend		12
Northfleet STW	PTTR.0020	Thames at Greenhithe		12
Northfleet STW	PTTR.0021	Thames at Gravesend		12
Northfleet Cement Works (2)	PTTR.0020	Thames at Greenhithe		12
Northfleet Cement Works (2)	PTTR.0021	Thames at Gravesend		12
Tilbury STW	PTTR.0021	Thames at Gravesend		12
Tilbury STW	PTTR.0022	Thames at Ovens Buoy		12
Southend STW	PTTR.0025	Thames at Southend		12
Southend STW	PTTR.0026	Thames at No.2 Sea Reach		12
Basildon STW	PTNR.0065	Vange Creek at Wildlife Park	2.0	12
Cleanaway Ltd.	PTNR.0066	Holehaven Creek at Fobbing Horse Barrier	0.9	12
Total Discharges = 63		Total Sites = 63		756

Table 3: EC DANGEROUS SUBSTANCES DIRECTIVE
HEXACHLOROCYCLOHEXANE 1994

Discharge	URN	Site Name	Km d/s of STW	Samp Freq.
Worcester Park STW	PBVR.0004	Beverley Brook, Motspur Park	1.0	12
Cleanaway Ltd	PTNR.0066	Holehaven Creek at Fobbing Horse Barrier	0.9	12

**Table 4: EC DANGEROUS SUBSTANCES DIRECTIVE
PENTACHLOROPHENOL 1994**

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Rye Meads STW	PLER.0060	Lee, Dobbs Weir	2.2	12

Table 5: EC DANGEROUS SUBSTANCES DIRECTIVE
CHLOROFORM 1994

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Rye Meads STW	PLER.0060	Lee, Dobbs Weir	2.2	12
UKAEA, Harwell	PTHR.0105	Thames at Sutton Bridge	0.6	12

Table 6: EC DANGEROUS SUBSTANCES DIRECTIVE
TRICHLOROETHYLENE 1994

Discharge	Details of Sampling Point		Km d/s of STW	Samp Freq.
	URN	Site Name		
Rye Meads STW	PLER.0060	Lee, Dobbs Weir	2.2	12
Slough STW	PTHR.0008	Boveney Ditch us Thames	1.9	12

Table 7: EC DANGEROUS SUBSTANCES DIRECTIVE 1994
List 2 Monitoring Sites

Discharge	URN	Monitoring Site	Km d/s	Sampling Freq.
FIRE COLLEGE, MORETON-IN-MARSH	PEVR.0052	FIRE COLLEGE STREAM 150m ds A44	?	12
RADLEY ASH DISPOSAL LAGOONS	PTHR.0258	PUMNEY FARM DITCH us Thames	0.2	12
NATIONAL GAS TURBINE ESTABLISHMENT	PLDR.0058	PYESTOCK TRIBUTARY at Ivey Rd. Farnborough	0.5	12
UKAEA HARWELL	PTHR.0105	THAMES at Sutton Bridge, Culham	0.6	12
READING STW	PKER.0039	KENNET, Berkeley Av Reading	2.0	12
GODALMING STW	PWER.0151	WEY above Cranleigh Waters	1.2	12
VOKES LTD	PWER.0152	CLASFORD BROOK at Clasford Bridge, Normandy	?	12
REDLAND BRICKS LTD	PWER.0002	COLLINS BROOK us Collins Farm	0.2	12
HEADLEY PARK WTW	PWER.0153	WEY (SOUTH) at Heath Hill Lane, Headley	0.8	12
ELSTEAD WTW	PWER.0046	WEY at Somerset Bridge, Elstead	1.6	12
TILFORD WTW	PWER.0110	WEY at Elstead	5.6	12
BORDON ARMY CAMP	PWER.0015	SLEA at Sleaford Bridge	?	12
MAPLE LODGE STW	PCNR.0186	GUC at Coppermill Lane Harefield	0.8	12
BLACKBIRDS STW	PCNR.0026	COLNE at Bushey Mill Lane	4.0	12
GEMALA BATTERY CO. LTD.	PTNR.0010	GORESBROOK at Horseshoe Sluice	1.8	12
BASILDON STW	PTNR.0065	VANGE CREEK at Wildlife Park	2.0	12
CLEANAWAY LTD	PTNR.0066	HOLEHAVEN CREEK at Fobbing Horse Barrier	0.9	12
BRITANNIA REFINED METALS	PTTR.0020	THAMES at Greenhithe	4.6	12
BRITANNIA REFINED METALS	PTTR.0021	THAMES at Gravesend	3.1	12
CALVERT LANDFILL SITE	PCHR.0173	MUXWELL BROOK below Calvert Landfill Site	0.2	12
AWE, ALDERMASTON	PTHR.0121	THAMES us Mapledurham Weir	2.5	12
REDLAND ROOF TILES LTD.	PUTR.0009	CERNEY WICK BROOK at Spine Road	1.5	12
GREENAWAYS LANDFILL LTD	PKER.0185	CLAYHILL BROOK us Kennet	0.4	12
GRIMSBURY WTW (4 discharges)	PCHR.0194	CHERWELL below Grimsbury WTW	0.1	12
DIDCOT POWER STATION	PTHR.0081	THAMES at Clifton Hampden Bridge	4.9	12
WORCESTER PARK STW	PBVR.0004	BEVERLEY BROOK at Motspur Park	1.0	12
BLUE CIRCLE CEMENT WORKS, NORTHFLE	PTTR.0020	THAMES at Greenhithe	6.0	12
BLUE CIRCLE CEMENT WORKS, NORTHFLE	PTTR.0021	THAMES at Gravesend	1.7	12
CAPE BOARDS LTD		NO CURRENT DISCHARGE		
ROYDON WTW (2 discharges)	PLER.0149	STORT at Roydon	0.9	12
FAIRLOP QUARRY	PRGR.0131	SEVEN KINGS WATER at Painters Road	1.1	12
BALDWINS FARM QUARRY	PTNR.0019	RAINHAM MAIN SEWER ds Riverside Ditch	9.6	12
PURTON LANDFILL SITE	PUTR.0176	KEY at Purton Stoke		12

TOTAL DISCHARGES = 35

TOTAL SITES = 31

**Table 8: EC DANGEROUS SUBSTANCES DIRECTIVE
Environmental Monitoring 1994**

URN	Site Name	Samp. Freq.	Map Ref.
PCHR.0016	CHERWELL, Marston Rd Oxford	12	SP52700670
POCR.0013	OCK us Thames	12	SU49509670
PUTR.0071	RAY, Seven Brs Cricklade	12	SU11909270
PTAR.0029	THAME, Thame Br	12	SP70400650
PTAR.0022	THAME, Dorchester Br	12	SU57909390
PTHR.0113	THAMES, Farmoor intake	12	SP43900640
PWRR.0021	WINDRUSH, Newbridge GS	12	SP40200190
PWRR.0029	WINDRUSH, Harford Bridge	12	SU12872289
PKER.0025	KENNET 100m us Thames	12	SU73107380
PKER.0058	LAMBOURN, A4 Newbury	12	SU48706740
PTHR.0080	THAMES, Caversham weir	12	SU72107420
PCNR.0106	COLNE us Ver	12	TL14200130
PBRR.0018	BRENT/GUC, lock 100 Brentford	12	TQ17157765
PCNR.0025	COLNE us Thames	12	TQ03307160
PCNR.0039	COLNE Bk us Thames	12	TQ01907230
PCRR.0006	CRANE, Northcote Rd Isleworth	12	TQ16347477
PCRR.0025	D OF N's Riv, Kidds Mill	12	TQ16587596
PLER.0147	STORT, Hazel End	12	TL50102429
PRGR.0003	BEAM, Havering sluice	12	TQ49958150
PRGR.0018	INGREBOURNE, A13 Br	12	TQ52378262
PLER.0067	LEE, Lea Valley Rd	12	TQ37509490
PLER.0053	LEE us Ware lock	12	TL35201430
PLER.0057	LEE, Carpenters Rd	12	TQ37708450
PRGR.0038	RODING, Woodford Br	12	TQ41809160
PLDR.0010	BLACKWATER, Swallowfield GS	12	SU73106480
PTHR.0124	CUT us Thames	12	SU91407870
PLDR.0029	LODDON, A4 Br Twyford	12	SU77907660
PLDR.0160	WHITEWATER 10 M above Greywell	12	SU71645058
PWER.0036	WEY, Tilford GS	12	SU87404340
PMLR.0022	MOLE us Thames	12	TQ15406830
PWER.0030	WEY us Thames	12	TQ07506570
PWAR.0062	WANDLE, Causeway Wandsworth	12	TQ25587484
PBVR.0006	BEVERLEY Bk, Priests Br	12	TQ21487552
PHMR.0010	HOGSMILL us Thames	12	TQ17806910
PRVR.0026	RAVENSBOURNE, Deptford Br	12	TQ37437666
PRVR.0024	RAVENSBOURNE, Caesars Well	12	TQ41836403
PTHR.0107	THAMES, Teddington weir	12	TQ17007130
PTTR.0006	THAMES at Barnes	12	TQ21407635
PTTR.0011	THAMES at London Bridge	12	TQ32908050
PTTR.0019	THAMES at Erith	12	TQ51757860
PTTR.0023	THAMES at Mucking	12	TQ71758025
-PTTR.0024 -	THAMES at Chapman Buoy	12	TQ81408135
-PTTR.0026 -	THAMES at No.2 Sea Reach	12	TQ96158070

Total Sites = 43

516

TABLE 9

Dangerous Substances Directive

List 1 Standards

Substance	Freshwaters	Estuaries	Coastal	National Network Sites
Mercury	1	0.5 (DA)	0.3 (DA)	
Cadmium	5	5 (DA)	2.5 (DA)	Freshwater 1 Estuaries 1 (DA) Coastal 0.5 (DA)
Total HCH	0.1	0.02		Freshwater 0.05
DDT		0.01 ppDDT 0.025 for all isomers		
PCP		2		
CTC		12		
Aldrin		0.01		
Dieldrin		0.01		
Endrin		0.005		
Isodrin		0.005		
HCB		0.03		
HCBD		0.1		
Chloroform		12		
Asbestos		3000 (TM)		
ECD		10*		
TRI		10*		
PER		10*		
TCB		0.4		

NOTES:

The standards required vary depending on the type of water for Mercury, Cadmium and HCH only. The standards for all the other substances remain the same for coastal, fresh and estuarine water.

National Network Sites are designated "Background" monitoring sites, as opposed to monitoring sites that are used to assess the affect of a discharge on a watercourse. These sites are supposed to show the "background" levels of the substances present in the rivers.

The standards refer to the annual mean and to the total amount of substance present in the samples - except: DA - annual mean of the dissolved substance and TM - total maximum amount of substance allowed per any 1 sample.

Units are microgrammes per litre (ug/l)

* These standards only apply if the upstream discharge contains more than 30 kg per year of the substance

TABLE 10

Dangerous Substances Directive

List 2 Standards

Substance		Water Hardness (mg/l CaCO ₃)	Salmonid	Cyprinid	Saline
Lead	AD	0-50	4	50	25
		50-150	10	125	
		150+	20	250	
Chromium	AD	0-50	5	150	15
		50-100	10	175	
		100-200	20	200	
		200+	50	250	
Zinc	AT	0-50	8	75	40 AD
		50-100	50	175	
		100-250	75	250	
		250+	125	500	
Copper	AD	0-50	1	1	5
		50-100	6	6	
		100-250	10	10	
		250+	28	28	
Nickel	AD	0-50	50	50	30
		50-100	100	100	
		100-200	150	150	
		200+	200	200	
Arsenic	AD		50	50	25
Boron	AT		2000	2000	7000
Iron	AD		1000	1000	1000
pH	P		6-9	6-9	6-8.5
Vanadium	AT	0-200	20	20	100
		200+	60	60	
Tributyltin	MT		0.02	0.02	0.002
Triphenyltin	MT		0.02	0.02	0.008
PCSDs	PT		0.05	0.05	0.05
Cyfluthrin	PT		0.001	0.001	0.001
Sulcofuron	PT		25	25	25
Flucofuron	PT		1	1	1
Permethrin	PT		0.01	0.01	0.01

NOTES:

For most substances the standards required vary depending on the type of water. Salmonid and Cyprinid classes refer to freshwaters designated under the EC Freshwater Fisheries Directives ; Saline refers to coastal and estuarine waters.

The standards can also vary according to the hardness of the water for the freshwater sites. Hardness is measured as Calcium Carbonate (CaCO₃) in milligrammes per litre (mg/l).

Units are microgrammes per litre (ug/l)

Standards

A - annual mean must be less than the standard

P - 95% of all samples must comply

M - maximum concentration allowed per sample

T and D refer to total amount or dissolved amount of substance present in sample respectively

Table 11: DANGEROUS SUBSTANCES
Water Utilities Sewage Treatment Works 1994/95

Discharge	U.R.N.	Cadmium	List 1	List 2E
NORTH EAST AREA				
BERKHAMSTED 'D'	PCNE.0024		4	4
BLACKBIRDS :ALDENHAM	PCNE.0011	48	4	48
CHESHAM	PCNE.0031	24	4	4
MAPLE LODGE	PCNE.0119	48	4	4
BISHOPS STORTFORD <i>G. Hallingbury Brook</i>	PLEE.0022	24	4	4
DEEPHAMS (LEE)	PLEE.0040	48		
HATFIELD (MILL GREEN) <i>Trib of LEE</i>	PLEE.0085		4	4
LUTON (EAST HYDE) (LEE)	PLEE.0111	48	4	4
RYE MEADS <i>Toll House Stream</i>	PLEE.0140		4	4
BRENTWOOD	PRGE.0012		4	4
TOTAL		240	36	80
WEST AREA				
AYLESBURY (900 MM)	PTAE.0009		4	4
AYLESBURY (LAND AREA)	PTAE.0010		4	4
CRICKLADE	PUTE.0053		4	4
OXFORD (SANDFORD)	PTHE.0144		4	4
SWINDON (RODBOURNE) 'A'	PUTE.0128		4	4
ABINGDON (LAGOON)	PTHE.0003		4	4
ABINGDON (MICRO-STRAINERS)	PTHE.0002		4	4
ABINGDON (NEW OUTFALL)	PTHE.0252		4	4
READING (MANOR FARM)	PKEE.0097	48	4	48
WARGRAVE	PLDE.0110		4	4
TOTAL		48	40	84
SOUTH EAST AREA				
BASILDON (ANGLIAN)	PTNE.0066	24	4	26
BECKTON (SPOT)	PTNE.0007			
BEDDINGTON	PWAE.0010			
BENFLEET (ANGLIAN)	PTNE.0008		4	4
CANVEY (ANGLIAN)	PTNE.0013		4	4
CROSSNESS (SPOT)	PTSE.0028			
GRAVESEND (SOUTHERN)	PTSE.0072		4	4
HOGSMILL VALLEY	PHME.0008		4	4
KEW (SPOT)	PTSE.0084			
LONG REACH (SPOT)	PTSE.0088			
MOGDEN (SPOT)	PTNE.0065	48		
MOGDEN (COMPOSITE)	PTNE.0064	12		
NORTHFLEET (SOUTHERN)	PTSE.0122		4	4
PITSEA (ANGLIAN)	PTNE.0072		4	4

Table 11: DANGEROUS SUBSTANCES
Water Utilities Sewage Treatment Works 1994/95

Discharge	U.R.N.	Cadmium	List 1	List 2E
RIVERSIDE (SPOT)	PRGE.0080			
SOUTHEND (ANGLIAN)	PTNE.0101	48	4	4
STANFORD-LE-HOPE (ANGLIAN)	PTNE.0102		4	4
TILBURY (ANGLIAN)	PTNE.0116	48	4	4
WORCESTER PARK (A/S PLANT)	PBVE.0044	48		
ALDRSHOT TOWN (SOUTH)	PLDE.0003	24	4	4
ASH VALE	PLDE.0009		4	4
BASINGSTOKE	PLDE.0012		4	4
BRACKNELL	PTHE.0027		4	4
CAMBERLEY	PLDE.0022	48	4	4
FLEET (900MM)	PLDE.0051		4	4
MAIDENHEAD	PTHE.0115		4	4
SANDHURST	PLDE.0086	24	4	4
WOKINGHAM (ASH RIDGE)	PLDE.0115	24	4	4
CHERTSEY	PBNE.0009		4	4
CHOBHAM (NEW)	PBNE.0020		4	4
CHOBHAM (OLD)	PBNE.0021		4	4
CRAWLEY NO. 2	PMLE.0054		4	4
DORKING	PMLE.0060		4	4
ESHER (COMBINED)	PMLE.0065		4	4
GODALMING NO. 1	PWEE.0087	24	4	24
GODALMING NO. 2	PWEE.0301	24	4	24
GODALMING NO. 3	PWEE.0302	24	4	24
GUILDFORD	PWEE.0097		4	4
HORLEY (SURREY)	PMLE.0091	24	4	4
LEATHERHEAD	PMLE.0116		4	4
REIGATE (EARLSWOOD)	PMLE.0174		4	4
SLOUGH 'A'	PTHE.0162		4	4
SLOUGH 'C'	PTHE.0164		4	4
WINDSOR	PTHE.0212		4	4
WISLEY	PWEE.0162		4	4
WOKING NO.1	PWEE.0181		4	4
TOTAL		444	148	230
* Cadmium AND Mercury at Tilbury				
** Cadmium AND HCH at Worcester Park				
REGIONAL TOTAL		732	224	394

**Table 12: DANGEROUS SUBSTANCES
CONSENTED DISCHARGES 1994**

Discharge Site	URN	Consented Substances
Aldershot Town South STW	PLDE.0003	Cd
AWE, Aldermaston	PTHE.0145	Cd, Cu, Zn, Cr, Fe, Ni, Pb
Baldwins Farm Quarry T/E: Ockendon	PTNE.0136	Fe
Basildon STW	PTNE.0066	Cd, Zn, Cu, Pb, Ni, Cr
Bishops Stortford STW	PLEE.0022	Cd
Blackbirds STW: Aldenham	PCNE.0011	Cd, Pb, Ni, Zn, Cr, Cu
Bordon Army Camp, Bordon	PWEE.0230	Fe
Britannia Refined Metals Battery Plt: Northfleet	PTSE.0150	Cd, Hg, Pb, Zn, Cu, Ni, As
Calvert Landfill Site	PCHE.0168	Cd, Cu, Zn, Ni, Cr, Pb
Camberley STW	PLDE.0022	Cd
Cape Boards Ltd: West Drayton	PCNE.0350	Cr
Chesham STW	PCNE.0031	Cd
Cleanaway Ltd: Pitsea	PTNE.0071	Cd, Pb, Ni, Zn, Cr, Cu, Hg, HCH
Deephams STW	PLEE.0040	Cd
Didcot Power Station C/W (HMIP)	AA3107	Cu, Zn
Fairlop Quarry T/E: Hainault	PRGE.0140	Fe
Fire Training College T/E: Moreton-In-Marsh	PEVE.0032	Zn
Gemala Battery Company: Dagenham	PTNE.0029	Cd, Pb, Ni, Zn, Cr, Cu
Godalming STW No.1	PWEE.0087	Cd, Pb, Ni, Zn, Cr, Cu
Godalming STW No.2	PWEE.0301	Cd, Pb, Ni, Zn, Cr, Cu
Godalming STW No.3	PWEE.0302	Cd, Pb, Ni, Zn, Cr, Cu
Greenaways Landfill T/E	PKEE.0190	Fe
Grimsbury WTW Filter	PCHE.0112	Fe
Grimsbury WTW Sludge	PCHE.0056	Fe
Grimsbury WTW Chlorine Tank Overflow	PCHE.0197	Fe
Grimsbury WTW Dual Media Plant	PCHE.0196	Fe
Horley STW	PMLE.0091	Cd
Long Reach STW	PTSE.0088	Cd
Luton (East Hyde) STW	PLEE.0111	Cd
Maple Lodge STW	PCNE.0119	Cd
Mogden STW	PTNE.0065	Cd
MSWC Filter Wash: Elstead	PWEE.0068	Fe
MSWC Filter Wash: Headley Park	PWEE.0104	Fe
MSWC Filter Wash: Tilford	PWEE.0145	Fe
NGTE 'B' Outfall 750Mm: Pyestock	PLDE.0080	Cr
Northfleet Cement Works (HMIP)	AH9499	Cd
Northfleet: Blue Circle Point A	PTSE.0101	Cd, Hg, Pb, Cu
Purton Landfill Site (Hills)	PUTE.0231	B, Fe
Radley Ash Disposal Lagoons	PTHE.0146	B, Cu, Pb, Zn, Cr, As
Reading STW	PKEE.0097	Cd, Pb, Zn, Ni, Cr, Cu
Redland Bricks Ltd: Cranleigh	PWEE.0055	Zn
Redland Roof Tiles Ltd	PUTE.0211	Fe
Roydon WTW Lagoon T/E	PLEE.0390	Fe
Roydon WTW Water Mains Washout	PLEE.0392	Fe
Sandhurst STW	PLDE.0086	Cd
Southend STW	PTNE.0101	Cd
Tilbury STW	PTNE.0116	Cd, Hg
UKAEA T/E: Harwell	PTHE.0082	Cd, CHCL3, Cu, Zn, Fe, B
Vokes Ltd, Normandy	PWEE.0110	Zn, Cr, Fe

**Table 12: DANGEROUS SUBSTANCES
CONSENTED DISCHARGES 1994**

Discharge Site	URN	Consented Substances
Wokingham (Ash Ridge) STW	PLDE.0115	Cd
Worcester Park STW (activated sludge)	PBVE.0044	HCH, Cu, Zn, Pb
Worcester Park STW (filter)	PBVE.0043	HCH, Cu, Zn, Pb

Number of Sites = 44

APPENDIX 1

EC Dangerous Substances Directive

Sediment Sampling

EC DANGEROUS SUBSTANCES DIRECTIVE

SEDIMENT MONITORING

1. INTRODUCTION

Under the terms of the EC Dangerous Substances Directive, a "standstill" provision is to be applied to certain List I substances. That is, the concentration in sediments and/or molluscs and/or shellfish and/or fish must not increase significantly with time. To show that there is a standstill, relevant data must be sent annually to the Department of the Environment.

2. SAMPLING SITES

2.1 General

Sediment sampling sites have been established to monitor the effects of specific discharges of List I substances, or to monitor environmental concentrations in the major river catchments. Tables 1 to 3 show the sites for the western and eastern areas of the Biology Department, and the Thames Tideway. The tables also indicate the analysis required.

Where access is difficult, or the sediment substrate is unsuitable for sampling, every effort should be made to find an alternative site bearing in mind that it should be in the area affected by the discharge.

2.2 Specific Discharges

The majority of discharges are monitored for cadmium and mercury. At these sites it will only be necessary to analyse the sediments for one or both of these metals. The analytical suites HGSED and CDSED for mercury and cadmium respectively, are shown in Tables 4 and 5.

2.3 Environmental Monitoring

These sites are generally located at the downstream end of major river catchments, or on the Thames Tideway. The sediments are analysed for a wider range of metals and organics and are included in the SED analytical suite as shown in Table 6.

3. SAMPLING FREQUENCY

Samples are to be taken annually.

4. SAMPLING METHODOLOGY

4.1 Sample Containers

It is essential that separate containers are provided for metals and organics fractions as they are treated totally separately in separate laboratories.

A 250 ml plastic container is provided for metals analysis at the Waterlooville analytical laboratory.

A 250 ml glass container is provided for organics analysis at the Fobney Mead analytical laboratory.

4.2 Sampling Method

Sediment samples should be taken in areas of deposition. Sediment sampling should be by means of either a tightly closed grab sampler or a suitable corer impacted on the sediment at a slow rate to minimise disturbance of the surface layer. However, at some sites it may be necessary to sample directly into the bottle from the sediment. Allow water to drain off so that the sample contains as much sediment as possible. Large stones and plant material should be removed. A stainless steel or plastic scoop can be used to transfer the sediment to the bottle where required. All grabs and scoops should be well washed between samples and sites to prevent cross-contamination.

4.3 Sample Labelling

The standard NRA Thames region labels should be used and marked to include the URN, samplers reference, date, time, and analysis required. The purpose code should be labelled as **R-R**. The relevant analytical suites are:

HGSED	(for mercury)
CDSED	(for cadmium)
SED	(for organics and metals)

Where the **SED** analytical suite is required separate containers must be used for the metals and organics fractions (as described in 4.1). The second bottle should be labelled using adhesive labels or writing on the bottles in indelible ink, and must be marked to include the sampler's reference, date, and time.

5. Sample Preparation

Sediment samples will be sieved at both analytical laboratories to obtain the < 63µm fraction. At Waterlooville samples for metals analysis will be "freeze -dried" before sieving. At Fobney samples will be wet sieved and then air dried for organic analysis. Sediment samples can be stored frozen prior to preparation and analysis. Moisture content at 105°C and total volatiles at 500°C will be carried out at both laboratories.

A H PLACE, November 1994

**Table 1: EC DANGEROUS SUBSTANCES DIRECTIVE
SEDIMENT MONITORING 1994**

Biology (West)

Discharge	Details of Sediment Site		Km d/s of STW	Analysis	
	URN	Site Name			
Environmental	PCHG.0001	Cherwell at Marston Road	---	SED	
Oxford STW	PTHG.0001	Northfield Brook at Sandford	0.9	CDSED	
Environmental	POCG.0001	Ock above Thames	---	SED	
Radley Ash Dispo	PTHG.0002	Pumney Farm Ditch above Thames	0.2	CDSED	
Swindon STW	PUTG.0001	Ray at Moredon Bridge, Swindon	2.0	CDSED	
Environmental	PUTG.0002	Ray at Seven Bridges, Cricklade	---	SED	
Environmental	PTAG.0002	Thame at Dorchester Bridge	---	SED	
Environmental	PTAG.0003	Thame at Thame Bridge	---	SED	
Environmental	PWRG.0001	Windrush at GS, Newbridge	---	SED	
Wokingham STW	PLDG.0001	Ashridge Stream at Toutley Rd., Wo	1.4	CDSED	
Aldeshot STW	PLDG.0002	Blackwater above Aldershot Military	2.4	CDSED	HGSED
Environmental	PLDG.0003	Blackwater at GS, Swallowfield	---	SED	
Sandhurst STW	PLDG.0004	Blackwater below Sandhurst STW	2.6	CDSED	
Camberley STW	PLDG.0008	Blackwater at A30 Roadbridge	0.8	CDSED	
Environmental	PKEG.0001	Kennet above Thames	---	SED	
Reading STW	PKEG.0002	Kennet at Berkeley Avenue	2.0	CDSED	HGSED
Environmental	PKEG.0003	Lambourn at A4 Newbury	---	SED	
Environmental	PLDG.0005	Loddon at A4 Roadbridge, Twyford	---	SED	
Basingstoke STW	PLDG.0006	Loddon at Keepers Cottage, Wildmoo	0.9	CDSED	HGSED
Wargrave STW	PLDG.0007	Loddon at Loddon Drive, Wargrave	0.9	CDSED	
Environmental	PTHG.0005	The Cut above Thames	---	SED	
Bracknell STW	PTHG.0006	The Cut at Cokeley Bridge	1.5	CDSED	
Slough STW	PTHG.0007	Boveney Ditch above Thames	1.9	CDSED	HGSED
Esher STW	PMLG.0001	Ember at rear of Grove Way	0.8	CDSED	
Leatherhead STW	PMLG.0005	Mole at Stoke D'Abernon Bridge	2.5	CDSED	
Horley STW	PMLG.0006	Mole at Wick Farm, Horley	2.2	CDSED	
Environmental	PWEG.0001	Wey above Thames	---	SED	
Wisley STW	PWEG.0003	Wey at Plough Bridge, Byfleet	3.0	CDSED	
Godalming STW	PWEG.0005	Wey above Cranleigh Waters	1.2	CDSED	
Cricklade STW	PUTG.0003	Thames at Eysey	0.6	CDSED	
Environmental	PTHG.0008	Thames at Water Intake Farmoor	---	SED	
Environmental	PTHG.0009	Thames at Caversham Weir	---	SED	

Total Sites = 32

**Table 2: EC DANGEROUS SUBSTANCES DIRECTIVE
SEDIMENT MONITORING 1994**

Biology (East)

Discharge	Details of Sediment Site		Km d/s f STW	Analysis	
	URN	Site Name			
Environmental	PWAG.0002	Wandle at the Causeway	---	SED	
Environmental	PRVG.0001	Ravensbourne at Deptford Bridge	---	SED	
Cleanaway Ltd	PTNG.0004	Holehaven Creek at Fobbing Horse B	0.9	SED	
Basildon STW	PTNG.0003	Vange Creek at Wildlife Park	2.0	SED	
Beddington STW	PWAG.0001	Wandle at Watermeads, Mitcham	2.9		CDSSED HGSED
Hogsmill STW	PHMG.0002	Hogsmill at Villiers Road	1.5	SED	
Worcester Park STW	PBVG.0001	Beverley Brook at Motspur Park	1.0	SED	
Environmental	PRGG.0005	Roding above A406	---	SED	
Environmental	PLEG.0009	Lee above Ware Lock	---	SED	
Environmental	PLEG.0008	Lee at Lea valley Road	---	SED	
Environmental	PLEG.0002	Lee above Lea Bridge	---	SED	
Environmental	PLEG.0001	Lee at Carpenters Road	---	SED	
Gemala Battery Co.	PTNG.0001	Gores Brook at Horseshoe Sluice	1.8		CDSSED
Bishops Stortford STW	PLEG.0007	Gt Hallingbury Brook above Stort	0.5		CDSSED HGSED
Luton STW	PLEG.0004	Lee at East Hyde Road Bridge	0.8		CDSSED HGSED
Rye Meads STW	PLEG.0003	Lee at Dobbs Weir	2.2	SED	
Environmental	PRGG.0003	Ingrebourne at A13 Bridge	---	SED	
Environmental	PCRG.0002	D of N's River at Kidds Mill	---	SED	
Environmental	PCNG.0006	Colne Brook above Thames	---	SED	
Maple Lodge STW	PCNG.0003	GUC at Coppermill Lane, Harefield	0.8		CDSSED HGSED
Blackbirds STW	PCNG.0002	Colne at Bushey Mill Lane	4.0		CDSSED HGSED
Chesham STW	PCNG.0001	Chess at Bois Mill Chesham	0.3		CDSSED

Total Sites = 22

**Table 3: EC DANGEROUS SUBSTANCES DIRECTIVE
SEDIMENT MONITORING 1994**

Thames Tideway

URN	Site		Grid Ref.	Discharge
PTTG.0056	ISLEWORTH	INTERTIDAL	TQ16957606	Mogden STW
PTTG.0026	KEW	INTERTIDAL	TQ19107790	Mogden/Kew STWs
PTTG.0027	HAMMERSMITH BRIDGE	INTERTIDAL	TQ23007800	Kew STW
PTTG.0055	BATTERSEA	INTERTIDAL	TQ26707680	Environmental
PTTG.0029	SOUTH BANK CENTRE	INTERTIDAL	TQ30808030	Environmental
PTTG.0031	GREENWICH	INTERTIDAL	TQ38307800	Environmental
PTTG.0033	WOOLWICH	SUBTIDAL	TQ42907940	Beckton STW
PTTG.0034	BECKTON	SUBTIDAL	TQ45608150	Beckton STW
PTTG.0036	CROSSNESS	SUBTIDAL	TQ49408090	Crossness/Riverside STW
PTTG.0038	PURFLEET	SUBTIDAL	TQ58007610	Long Reach STW
PTTG.0040	WEST THURROCK	SUBTIDAL	TQ59307700	Northfleet STW/Britannia Metals
PTTG.0042	GRAVESEND	SUBTIDAL	TQ64907460	Northfleet/Tilbury STWs/Britannia
PTTG.0043	MUCKING	SUBTIDAL	TQ70708080	Environmental
PTTG.0044	BLYTHE SANDS	SUBTIDAL	TQ75708050	Environmental
PTTG.0025	CANVEY BEACH	INTERTIDAL	TQ80008240	Environmental
PTTG.0019	CHAPMAN BOUY	SUBTIDAL	TQ81408130	Environmental
PTTG.0030	ALLHALLOWS	INTERTIDAL	TQ83807920	Environmental
PTTG.0047	GRAIN FLATS	SUBTIDAL	TQ87707950	Environmental
PTTG.0045	SOUTHEND	INTERTIDAL	TQ88808440	Southend STW
PTTG.0046	SOUTHEND	SUBTIDAL	TQ90108280	Southend STW
PTTG.0049	NO.2 SEA REACH	SUBTIDAL	TQ95508100	Environmental

Number of Sites = 21

ALL SITES TO BE ANALYSED FOR THE "SED" ANALYTICAL SUITE

Table 4**HGSED ANALYTICAL SUITE**

Mercury	mg/Kg	0271
< 63 μ m Sieved (metals)		0941

Results expressed as dry weight

Table 5**CDSSED ANALYTICAL SUITE**

Cadmium	mg/Kg	0255
< 63 μ m Sieved (metals)		0941

Results expressed as dry weight

Table 6

"SED" ANALYTICAL SUITE
(Analyses Expressed as Dry Weight)

Determinand	Determinand No.
Mercury*	0271
Cadmium*	0255
Chromium*	0377
Copper*	0217
Lead*	0330
Nickel*	0431
Zinc*	0247
< 63 μ m Sieved (metals)	0941
< 63 μ m Sieved (organics)	0942
Aluminium*	9885
Arsenic*	9884
HCH, alpha	1487
HCH, gamma	1499
HCH, beta	1490
Aldrin*	1483
Dieldrin*	1482
Endrin*	1481
DDT, pp'*	1555
DDT, op'*	1541
DDE, pp'*	1551
TDE, pp'*	1559
Pentachlorophenol	1087
Hexachlorobenzene*	1544
Hexachlorobutadiene	1572
Trichlorobenzene (1,2,3)	1535
Trichlorobenzene (1,2,4)	1536
Trichlorobenzene (1,3,5)	1537
Trichlorobenzene (total)	1539
PCB 28*	1755

Table 6

**"SED" ANALYTICAL SUITE
(Analyses Expressed as Dry Weight)**

Determinand		Determinand No.
PCB 52*	$\mu\text{g/Kg}$	1757
PCB 101*	$\mu\text{g/Kg}$	1759
PCB 118*	$\mu\text{g/Kg}$	1761
PCB 138*	$\mu\text{g/Kg}$	1763
PCB 153*	$\mu\text{g/Kg}$	1765
PCB 180*	$\mu\text{g/Kg}$	1767
PCB (total)	$\mu\text{g/Kg}$	1753

* Included in the National Monitoring Plan

APPENDIX 2

**Council Directive of 4 May 1976
on Pollution caused by certain Dangerous Substances
Discharged into the Aquatic Environment of the Community
(76/464/EEC)**

DANGEROUS SUBSTANCES DIRECTIVE (76/464/EEC)

Introduction

The directive provides for the control of the discharge of certain dangerous substances into the aquatic environment. Two lists of families or groups of substances are set out in the annex to the directive. List I includes substances selected mainly on the basis of their toxicity, persistence and bioaccumulation, except those which are biologically harmless. List II includes substances which have a deleterious effect on the aquatic environment which can, however, be confined to a given area and which depend on the characteristics and location of the water into which they are discharged. Member States must eliminate pollution by List I substances, and reduce pollution by List II substances.

List I Substances

The directive allows Member States to employ environmental quality objectives, as opposed to emission standards, to control the discharge of List I substances, and this is the preferred option in the UK. Consent conditions must be established to ensure that the quality objectives are achieved in waters affected by the discharge of the substance concerned.

A particular substance is not confined as warranting List I methods of control until a "daughter" directive setting limit values for it has been agreed by the Council of Ministers. So far daughter directives have been agreed for mercury from discharges by the chlor-alkali electrolysis industry (82/176/EEC); mercury from discharges other than from the chlor-alkali electrolysis industry (84/156/EEC); cadmium and its compounds (83/513/EEC); hexachlorocyclohexane (84/491/EEC); carbon tetrachloride, DDT, and pentachlorophenol (86/280/EEC); aldrin, dieldrin, endrin, isodrin, hexachlorobenzene, hexachlorobutadiene, and chloroform (88/347/EEC); and 1,2 dichloroethane, trichloroethylene, tetrachloroethylene, and trichlorobenzene (90/415/EEC).

All other substances in List I are for the time being to be treated as List II substances.

The Surface Waters (Dangerous Substances) Regulations 1989 and 1992

The quality objectives are set out in the annexes to each daughter directive, and have been implemented in the UK by the Surface Waters (Dangerous Substances) (Classification) Regulations 1989 (SI 1989/2286) and 1992 (SI 1992/337). The regulations prescribe three classifications; DS1 for inland freshwaters; DS2 for coastal waters and relevant territorial waters; and DS3 for relevant territorial waters, coastal waters, and inland freshwaters.

As defined in the Water Act 1989, coastal waters includes estuarial rivers as far as the freshwater limit defined on maps deposited with the National Rivers Authority. At present the classification DS2 applies to the Thames estuary as far as Teddington weir.

The relevant environmental quality standards are set out in Table 9 of the main report.

A Direction was issued to the NRA by DoE on 2nd January, 1990 and on 9th February, 1993 relating to the directives on discharges of dangerous substances. This imposed a duty on the NRA to include conditions in discharge consents which will ensure compliance with EC obligations, to establish monitoring procedures, to sample controlled waters, and to furnish the DoE with information on an annual basis.

List II Substances

Consent conditions must be established for discharges liable to contain a List II substance, and should be based on environmental quality objectives set down in national programmes. The DoE has established national environmental quality standards which were set out in DoE Circular 7/89. These are given in Table 10 Of the main report.

A H PLACE
Senior Scientist
Scientific Department

November, 1994

TABLE 1

ENVIRONMENTAL QUALITY STANDARDS

List I Substances

Substance	DS1	DS2	DS3
Aldrin	0.01 (TA)	0.01 (TA)	
Dieldrin	0.01 (TA)	0.01 (TA)	
Endrin	0.005 (TA)	0.005 (TA)	
Isodrin	0.005 (TA)	0.005 (TA)	
Total Drins	0.03 (TA)	0.03 (TA)	
Cadmium	5 (TA)	2.5 (DA)	
Carbon Tetrachloride (CTC)	12 (TA)	12 (TA)	
Chloroform	12 (TA)	12 (TA)	
Total DDT	0.025 (TA)	0.025 (TA)	
pp DDT	0.01 (TA)	0.01 (TA)	
Hexachlorobenzene (HCB)	0.03 (TA)	0.03 (TA)	
Hexachlorobutadiene (HCBd)	0.1 (TA)	0.1 (TA)	
Total HCH	0.1 (TA)	0.02 (TA)	
Mercury	1 (TA)	0.3 (DA)	
Pentachlorophenol (PCP)	2 (TA)	2 (TA)	
1,2 Dichloroethane (EDC)			10 (TA)
Trichloroethylene (TRI)			10 (TA)
Tetrachloroethylene (PER)			10 (TA)
Trichlorobenzene (TCB)			0.4 (TA)

All figures quoted as $\mu\text{g/l}$

A = annual average

T = total

D = dissolved

Classification of waters:-

DS1 Inland waters (SI 1989/2286)

DS2 Coastal waters and relevant-territorial
(SI 1989/2286)

waters

DS3 Relevant territorial waters, coastal waters
inland freshwaters (SI 1992/337)

and