

SHANKS WASTE MANAGEMENT LTD, PONTYPOOL HTI FACILITY

Appendix 6a Comparison of measured concentrations with water screening guidance values (WSGV)

Sample Identity	Nearby Pontypool Concentration Range*	SURFACE WATER							Lod/Units	WSGV	Screening Value Sources
		GS11	GS11	GS11-DUP	GS12	GS12	GS13	GS13			
ROUND		1	3	3	1	3	1	3			
Sample Type		WATER	WATER	WATER	WATER	WATER	WATER	WATER			
Sampled Date			30.03.06	30.03.06		30.03.06		30.03.06			
Sample Received Date		01.10.05	01.04.06	01.04.06	01.10.05	01.04.06	01.10.05	01.04.06			
Batch		11	1	1	11	1	11	1			
Sample Number(s)		1022-1029	331-334,336-339	335,340-346	1030-1037	347-354	1038-1046	355-362			
METALS AND TRADITIONALS											
Aluminium Dissolved (ICP-MS)	14-50	<3	30	44	<3	33	34	78	<3 ug/l	87	NAWQC (EPA 2004) - chronic (pH 6.5-9.0)
Arsenic Dissolved (ICP-MS)		2	1	<1	1	<1	2	<1	<1 ug/l	50	EQS (76/464/EEC) freshwater
Barium Dissolved (ICP-MS)	7.4-35	57	47	49	58	48	63	53	<1 ug/l	220	US EPA Region 5 (2003) Ecological Screening Levels (value for Total Ba)
Chromium Dissolved (ICP-MS)		14	<1	<1	4	<1	36	<1	<1 ug/l	20	EQS (76/464/EEC) freshwater suitable for all salmonid (hardness > 100-150)*
Copper Dissolved (ICP-MS)		2	1	2	3	1	25	<1	<1 ug/l	10	EQS (76/464/EEC) freshwater suitable for all fishlife (hardness > 100-150)*
Lead Dissolved (ICP-MS)	≤25	<1	<1	<1	<1	<1	4	<1	<1 ug/l	10	EQS (76/464/EEC) freshwater suitable for all salmonid (hardness > 100-150)*
Lithium Dissolved (ICP-MS)	4.5-24	23	13	13	22	10	26	11	<1 ug/l	14	Tier II SAV Surface Water Screening Benchmark, Chronic Value (Suter and Tsao 1996)
Nickel Dissolved (ICP-MS)	9-20	4	3	4	2	3	7	4	<1 ug/l	150	EQS (76/464/EEC) freshwater suitable for all fishlife (hardness > 100-150)*
Selenium Dissolved (ICP-MS)		7	2	<1	5	1	4	<1	<1 ug/l	5	US EPA Region 5 (2003) Ecological Screening Levels (value for Total Se)
Vanadium Dissolved (ICP-MS)	≤6	<1	<1	<1	<1	<1	2	<1	<1 ug/l	20	EQS (76/464/EEC) freshwater suitable for all fishlife (hardness > 100-150)*
Zinc Dissolved (ICP-MS)	5-20	29	17	26	15	20	136	16	<3 ug/l	75	EQS (76/464/EEC) freshwater suitable for all salmonid (hardness > 100-150) (value for Total Zn)
Mercury Dissolved (CVAA)		<0.05	0.14	0.12	<0.05	0.11	<0.05	<0.05	<0.05 ug/l	0.3	EQS (76/464/EEC) (value for costal and estuaries)
Sodium Dissolved	≤4.2	11.4	9.0	9.0	11.4	9.0	11.4	9.0	<0.2 mg/l	na	
Nitrate as NO3	≤0.2	3.8	5.5	5.4	3.8	4.9	3.9	4.9	<0.3 mg/l	50	Nitrates Directive (91/676/EC) (criteria for identification of nitrate polluted surface fresh waters)
Sulphate (soluble)	9.4-19	84	41	41	83	34	82	34	<3 mg/l	1000	British Columbia (2005) Fresh Water Aquatic Life (maximum)
Chloride	6.3-7.5	17	20	19	17	17	16	17	<1 mg/l	230	NAWQC (EPA 2004) - chronic (vpH 6.5-9.0)
pH Value	6.8-7.1	8.44	8.18	8.18	8.43	8.14	8.45	7.90	<1.00 pH Units	6-9	EQS (76/464/EEC)
PAHs											
2-Methylnaphthalene		2	<1	<1	<1	<1	<1	<1	<1 ug/l	330	US EPA Region 5 (2003) Ecological Screening Levels

Notes

- note measured
- na WSGV not available
- measured concentration higher then SSGV general
- * 100-200mg/l CaCO3 (Severn Estuary and catchment)
- * Data obtained from BGS "Regional Geochemistry - Stream Water - Wales" 1999

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**Appendix 6b Comparison of measured concentrations with water screening guidance values (WSGV)
Round 1 - Dioxins and Furans Results**

Sample Identifier :	GS11		GS12		Screening Value	Screening Value Sources
Sample No:	105-2284		105-2311			
Congener	TEQ1	TEQ2	TEQ1	TEQ2		
2378-TCDF	4.0E-04	0.0E+00	6.0E-04	0.0E+00		
12378-PCDF	2.0E-04	0.0E+00	3.0E-04	0.0E+00		
23478-PCDF	2.0E-03	0.0E+00	3.0E-03	0.0E+00		
123478-HxCDF	2.0E-04	0.0E+00	6.0E-04	0.0E+00		
123678-HxCDF	2.0E-04	0.0E+00	6.0E-04	0.0E+00		
234678-HxCDF	2.0E-04	0.0E+00	6.0E-04	0.0E+00		
123789-HxCDF	2.0E-04	0.0E+00	6.0E-04	0.0E+00		
1234678-HpCDF	2.0E-05	0.0E+00	6.0E-05	0.0E+00		
1234789-HpCDF	2.0E-05	0.0E+00	6.0E-05	0.0E+00		
OCDF	2.3E-05	2.3E-05	6.0E-06	0.0E+00		
2378-TCDD	6.0E-03	0.0E+00	6.0E-03	0.0E+00		
12378-PCDD	2.0E-03	0.0E+00	3.0E-03	0.0E+00		
123478-HxCDD	4.0E-04	0.0E+00	6.0E-04	0.0E+00		
123678-HxCDD	4.0E-04	0.0E+00	6.0E-04	0.0E+00		
123789-HxCDD	4.0E-04	0.0E+00	6.0E-04	0.0E+00		
1234678-HpCDD	5.7E-04	5.7E-04	6.0E-05	0.0E+00		
OCDD	4.0E-04	4.0E-04	6.0E-06	0.0E+00		
TEQ (Nato) ng/l	0.0136	0.0010	0.0173	0.0000		
Average (TEQ1+TEQ2)/2	0.0073		0.0086			
Sum of Furans (TCDF)	0.0035	0.0000	0.0064	0.0000		
Average (TEQ1+TEQ2)/2	0.0017		0.0032			
Sum of Dioxins (TCDD)	0.0102	0.0010	0.0109	0.0000	<10	NOAA (ambient water criteria - 2378 TCDD)

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**Appendix 6c Comparison of measured concentrations with water screening guidance values (WSGV)
Round 3 - Dioxins and Furans Results**

Borehole No		GS 11			GS 11- DUP			GS 12			GS 13			Screening Value	Screening Value Sources
Sample No		106-1258			106-1259			106-1260			106-1261				
Congener	TEFs	Conc (ng/l)	TEQ1	TEQ2	Conc (ng/l)	TEQ1	TEQ2	Conc (ng/l)	TEQ1	TEQ2	Conc (ng/l)	TEQ1	TEQ2		
2378-TCDF	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
12378-PCDF	0.050	*	5.E-05	0.E+00	*	5.E-05	0.E+00	*	5.E-05	0.E+00	*	5.E-05	0.E+00		
23478-PCDF	0.500	*	5.E-04	0.E+00	*	5.E-04	0.E+00	*	5.E-04	0.E+00	*	5.E-04	0.E+00		
123478-HxCDF	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
123678-HxCDF	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
234678-HxCDF	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
123789-HxCDF	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
1234678-HpCDF	0.010	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00		
1234789-HpCDF	0.010	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00		
OCDF	0.001	*	1.E-06	0.E+00	*	1.E-06	0.E+00	*	1.E-06	0.E+00	*	1.E-06	0.E+00		
2378-TCDD	1.000	*	1.E-03	0.E+00	*	1.E-03	0.E+00	*	1.E-03	0.E+00	*	1.E-03	0.E+00		
12378-PCDD	0.500	*	5.E-04	0.E+00	*	5.E-04	0.E+00	*	5.E-04	0.E+00	*	5.E-04	0.E+00		
123478-HxCDD	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
123678-HxCDD	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
123789-HxCDD	0.100	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00	*	1.E-04	0.E+00		
1234678-HpCDD	0.010	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00	*	1.E-05	0.E+00		
OCDD	0.001	*	1.E-06	0.E+00	4.E-03	4.E-06	4.E-06	*	1.E-06	0.E+00	*	1.E-06	0.E+00		
TEQ (Nato)			0.0029	0.0000		0.0029	0.0000		0.0029	0.0000		0.0029	0.0000		
Sum of Furans (TCDF)			0.0011	0.0000		0.0011	0.0000		0.0011	0.0000		0.0011	0.0000		
Sum of Dioxins (TCDD)			0.0018	0.0000		0.0018	0.0000		0.0018	0.0000		0.0018	0.0000	<10	NOAA (ambient water criteria - 2378 TCDD)