

SHANKS WASTE MANAGEMENT LTD, PONTYPOOL HTI FACILITY

Appendix 8a: Hazard Index (HI) - Soil

Comparison of measu

	BH samples (max)	GS samples (max)	LoD/Units	PNEC microbes	Source	PNEC invertebrates	Source	PNEC Plants	Source	PNEC Mammalian	Source	PNEC Avian	Source	BH Samples PEC(max) /PNEC					GS Samples PEC(max) /PNEC																
														Microbes	Invertebrates	Plants	Mammalian	Avian	Microbes	Invertebrates	Plants	Mammalian	Avian												
METALS and TRADITIONALS																																			
Arsenic*	25	21	mg/kg	100	ORNL	60	ORNL	18	OSWER	46	OSWER	43	ORNL	0.2	0.4	<i>1.4</i>	0.5	0.6	0.2	0.4	<i>1.2</i>	0.5	0.5												
Barium*	546	730	mg/kg	3000	ORNL	330	OSWER	500	ORNL	2000	OSWER	85	ODEQ	0.2	<i>1.7</i>	<i>1.1</i>	0.3	6.4	0.2	2.2	<i>1.5</i>	0.4	8.6												
Chromium*	75	1177	mg/kg	10	ORNL (Cr III)	0.4	ORNL (Cr VI)	1	ORNL (Cr VI)	81	OSWER (Cr VI)	26	OSWER (Cr III)	7.5	187.9	75.1	0.9	2.9	117.7	2941.4	1176.5	14.5	45.3												
Copper*	85	371	mg/kg	100	ORNL	50	ORNL	100	ORNL	390	ODEQ	190	ODEQ	0.8	<i>1.7</i>	0.8	0.2	0.4	3.7	<i>7.4</i>	<i>3.7</i>	1.0	2.0												
Lead*	243	515	mg/kg	900	ORNL	1700	OSWER	120	OSWER	56	OSWER	11	OSWER	0.3	0.1	<i>2.0</i>	4.3	22.1	0.6	0.3	<i>4.3</i>	9.2	46.8												
Mercury*	2	1	mg/kg	30	ORNL	0.1	ORNL	0.3	ORNL	73	ODEQ	1.5	ODEQ	0.1	24.2	<i>8.1</i>	0.0	<i>1.6</i>	0.0	8.3	<i>2.8</i>	0.0	0.6												
Nickel*	301	4926	mg/kg	90	ORNL	200	ORNL	30	ORNL	625	ODEQ	320	ODEQ	3.3	<i>1.5</i>	10.0	0.5	0.9	54.7	24.6	164.2	7.9	15.4												
Vanadium*	44	115	mg/kg	20	ORNL	na	-	2	ORNL	280	OSWER	7.8	OSWER	2.2		22.0	0.2	5.6	5.8		57.7	0.4	14.8												
Zinc*	306	1548	mg/kg	100	ORNL	100	ORNL	50	ORNL	20000	ODEQ	60	ODEQ	<i>3.1</i>	<i>3.1</i>	<i>6.1</i>	0.0	5.1	15.5	15.5	31.0	0.1	25.8												
Free Cyanide	<1	2	<1 mg/kg	na	-	na	-	na	-	na	-	na	-																						

Notes: na PNEC not available
 PEC/PNEC not calculated (PNEC not available)
 PEC/PNEC > 1 in italic
 PEC/PNEC > 10 in bold
 Where 0.0 is stated this reflects a HI <0.04

SHANKS WASTE MANAGEMENT LTD, PONTYPOOL HTI FACILITY

**Appendix 8b: Hazard Index (HI) - Soil
Comparison of measured concentrations (PEC) with Predicted no effect concentrations (PNEC) - organics**

Sample Identity	BH samples (max)	GS samples (max)	LoD/Units	PNEC										BH Samples HI = PEC(max) /PNEC					GS Samples HI = PEC(max) /PNEC				
				PNEC microbes	Source	PNEC invertebrates	Source	PNEC Plants	Source	PNEC Mammalian	Source	PNEC Avian	Source	Microbes	Invertebrates	Plants	Mammalian	Avian	Microbes	Invertebrates	Plants	Mammalian	Avian
HYDROCARBONS																							
TPH (Aliphatics and Aromatics C5-C35)	273717	3535405	<100µg/kg	na	-	na	-	na	-	5000000	VROM (intervention level for mineral oil)	na	-				0.00				0.7		
PAHs																							
Naphthalene	1125	<100	<100µg/kg	na	-	na	-	10000	ODEQ	3900000	ODEQ	na	-			0.1	0.0				<0.01	<0.01	
Phthalates																							
Bis(2-ethylhexyl) phthalate	<100	6223	<100µg/kg	na	-	na	-	na	-	1020000	ODEQ	4500	ODEQ				0.0	<i>1.4</i>			0.0	<i>1.4</i>	
Di-n-butyl phthalate	<100	6147	<100µg/kg	na	-	na	-	200000	ODEQ	30000000	ODEQ	450				0.0	0.0	13.7			0.0	0.0	13.7
Other Semi-volatiles																							
Carbazole	0	187	<100µg/kg	na	-	na	-	na	-	na	-	na	-										
Dibenzofuran	473	352	<100µg/kg	na	-	na	-	na	-	2	ODEQ	na	-				176.0					176.0	
Volatile Organic Compounds																							
1,2,4-Trimethylbenzene	12	<1	<1µg/kg	na	-	na	-	na	-	na	-	na	-										
1,3,5-Trimethylbenzene	5	<1	<1µg/kg	na	-	na	-	na	-	na	-	na	-										

Notes:
na PNEC not available
PEC/PNEC not calculated (PNEC not available)
PEC/PNEC > 1 in italic
PEC/PNEC > 10 in bold
Where 0.0 is stated this reflects a HI <0.04


SHANKS WASTE MANAGEMENT LTD, PONTYPOOL HTI FACILITY

Appendix 8c: Hazard Index (HI) - Soil

Comparison of measured concentrations (PEC) with Predicted no effect concentrations (PNEC) - dioxins and furans

Sample Identity	PEC (µg/kg TEQ)		PNEC (µg/kg TEQ)									BH Samples					GS Samples					
	max BH	Max GS	PNEC microbes	Source	PNEC Invertebrates	Source	PNEC Plants	Source	PNEC Mammalian	Source	PNEC Avian	Source	Microbes	Invertebrates	Plants	Mammalian	Avian	Microbes	Invertebrates	Plants	Mammalian	Avian
Dioxins and furans	0.379	0.356	na	-	na	-	na	-	0.1	ODEQ	0.06	ODEQ				3.2	6.9				3.0	6.5

Notes:

- na PNEC not available
-  PEC/PNEC not calculated (PNEC not available)
- PEC/PNEC > 1 in italic*
- PEC/PNEC > 10 in bold**
- Where 0.0 is stated this reflects a HI <0.04