

SHANKS WASTE MANAGEMENT LTD, PONTYPOOL HTI FACILITY

screening guidance values (SedSGV)

| Sample Identity | Pontypool Concentration Range* | GS11 | GS11 | GS12 | GS12 | GS13 | GS13 | LoD/Units | SedSGV | Sources |
|--|--------------------------------|----------|----------|----------|----------|----------|----------|----------------|----------|------------------------------------|
| Sampled Date | | 29.09.05 | 05.05.06 | 29.09.05 | 05.05.06 | 29.09.05 | 05.05.06 | | | |
| METALS | | | | | | | | | | |
| Total Sulphate BRE | | 0.209 | 0.065 | 0.105 | 0.394 | 0.091 | 0.044 | <0.005 % | | |
| Total Sulphate BRE (Corrected to mg/l) | | 2090 | 650 | 1050 | 3940 | 910 | 440 | mg/l | n.a. | - |
| Aluminium* | | 9100 | 9314 | 12800 | 15990 | 20100 | 7060 | mg/kg | 58000 | EPA 1996 (PEC) |
| Arsenic* | 22-46 | 11.43 | 11 | 18.35 | 12 | 24.12 | 7 | mg/kg | 5.9 | NOAA(TEL) |
| Barium* | | 247.08 | 227 | 235.4 | 318 | 536.28 | 233 | mg/kg | n.a. | only available for marine sediment |
| Cadmium* | <1 | 2 | <1 | 3 | <1 | 4 | <1 | mg/kg | 0.596 | NOAA(TEL) |
| Chromium* | 100-600 | 20.29 | 14 | 19.51 | 30 | 19.88 | 15 | mg/kg | 37.3 | NOAA(TEL) |
| Copper* | 42-160 | 19.55 | 37 | 34.11 | 98 | 56.88 | 36 | mg/kg | 35.7 | NOAA(TEL) |
| Lead* | 110-1100 | 17.44 | 50 | 28.34 | 76 | 85.04 | 53 | mg/kg | 35 | NOAA(TEL) |
| Mercury* | | 0.22 | <1.2 | 0.15 | <1.2 | 0.17 | <1.2 | mg/kg | 0.174 | NOAA(TEL) |
| Nickel* | 52-110 | 34.93 | 36 | 47.37 | 35 | 64.15 | 39 | mg/kg | 18 | NOAA(TEL) |
| Vanadium* | 88-130 | 28.73 | 25 | 47.79 | 59 | 51.77 | 19 | mg/kg | n.a. | only available for marine sediment |
| Zinc* | 180-450 | 83.97 | 199 | 159.51 | 122 | 215.37 | 199 | mg/kg | 123.1 | NOAA(TEL) |
| Total Alkalinity as CaCO3 | | - | - | - | - | - | - | <10 mg/kg | | |
| Sodium | | 1012 | 427 | 887 | 2202 | 733 | 258 | <4 mg/kg | | |
| Nitrate (soluble) as NO3 | | 5 | 6 | 9 | 25 | 12 | 4 | <1 mg/kg | | |
| Acid Soluble Sulphide | | 83 | <50 | <50 | <50 | <50 | 67 | <50 mg/kg | | |
| Chloride (soluble) | | 52 | 50 | 56 | 116 | 21 | 26 | <5 mg/kg | | |
| Bromide | | 3.1 | <0.1 | 6.8 | <0.1 | <0.1 | <0.1 | <0.1 mg/kg | | |
| pH Value | | 8.43 | 7.75 | 7.59 | 7.57 | 7.66 | 7.51 | <1.00 pH Units | | |
| HYDROCARBONS | | | | | | | | | | |
| TPH (Aliphatics and Aromatics C5-C35) | | 144960 | 293507 | 115074 | 122034 | 80808 | 40022 | <100 ug/kg | 50000 | VROM (TL) |
| PCB 7 Congeners | | | | | | | | | | |
| Total of 7 Congener PCBs | | <1 | <10 | <1 | <5 | 7 | <5 | <1 ug/kg | 34.1 | NOAA(TEL) value for PCBs |
| Total of 12 Congener PCBs | | <12 | <120 | <12 | <60 | <12 | <60 | <1 ug/kg | 34.1 | NOAA(TEL) value for PCBs |
| p,p'-DDT | | <10 | 36 | <1 | <10 | <1 | <10 | <1 ug/kg | 1.19 | CCME (ISQG) |
| PAHs | | | | | | | | | | |
| Benzo(a)anthracene | | 296 | 380 | 149 | <100 | 325 | <100 | <100 ug/kg | 31.7 | CCME (ISQG) |
| Benzo(a)pyrene | | 428 | 225 | <100 | <100 | 386 | <100 | <100 ug/kg | 31.9 | NOAA(TEL) |
| Benzo(b)fluoranthene | | 279 | 183 | <100 | <100 | 223 | <100 | <100 ug/kg | 31.9 | CCME value for benzo(a)pyrene |
| Benzo(ghi)perylene | | 282 | <100 | <100 | <100 | 180 | <100 | <100 ug/kg | 170 | Ontario(Low) |
| Benzo(k)fluoranthene | | 362 | 220 | <100 | <100 | 377 | <100 | <100 ug/kg | 240 | Ontario(Low) |
| Chrysene | | 359 | 287 | 167 | <100 | 363 | <100 | <100 ug/kg | 57.1 | NOAA(TEL) |
| Dibenzo(a,h)anthracene | | <100 | <100 | <100 | <100 | 130 | <100 | <100 ug/kg | 6.22 | CCME (ISQG) |
| Fluoranthene | | 439 | 481 | 282 | <100 | 545 | 178 | <100 ug/kg | 111 | NOAA(TEL) |
| Indeno(1,2,3-cd)pyrene | | 249 | <100 | <100 | <100 | 171 | <100 | <100 ug/kg | 200 | Ontario(Low) |
| Phenanthrene | | 327 | 254 | 199 | <100 | 302 | <100 | <100 ug/kg | 41.9 | NOAA(TEL) |
| Pyrene | | 343 | 387 | 220 | <100 | 397 | 164 | <100 ug/kg | 53 | NOAA(TEL) |
| Volatile Organic Compounds | | | | | | | | | | |
| Vinyl Chloride | | 17 | <1 | <1 | <1 | <1 | <1 | <1 ug/kg | 202 | EPA R5 ESL |
| trans-1-2-Dichloroethene | | 12 | <1 | <1 | <1 | <1 | <1 | <1 ug/kg | 654 | EPA R5 ESL |
| 1,1-Dichloroethane | | <1 | 9 | <1 | <1 | <1 | <1 | <1 ug/kg | 2.01E+04 | EPA R5 ESL |
| cis-1-2-Dichloroethene | | 35 | 137 | <1 | <1 | <1 | <1 | <1 ug/kg | na | - |
| Chloroform | | <1 | 5 | <1 | <1 | <1 | <1 | <1 ug/kg | 1190 | EPA R5 ESL |
| Trichloroethene | | 4 | 4 | <1 | <1 | <1 | <1 | <1 ug/kg | 112 | EPA R5 ESL |
| Toluene | | 7 | <1 | 7 | <1 | 5 | <1 | <1 ug/kg | 1220 | EPA R5 ESL |
| Ethylbenzene | | 4 | <1 | 2 | <1 | <1 | <1 | <1 ug/kg | 175 | EPA R5 ESL |
| Bromoform | | 9 | <1 | 9 | <1 | 6 | <1 | <1 ug/kg | 492 | EPA R5 ESL |

Notes:

- note measured
- na SedSGV not available
- measured concentration higher than SSGV
- measured concentration is detection limit but higher than SSGV
- * Data obtained from BGS "Regional Geochemistry - Stream Water - Wales" 1999

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Appendix 7b: Comparison of measured concentrations of dioxins and furans with sediment screening guidance values (SedSGV)

| | Background levels (AEAT 1999) | Sample | GS11 | | | GS11 (R3) | | | GS12 | | | GS12 (R3) | | | GS13 | | | GS13 (R3) | | | Screening Value | Screening Value Sources | |
|--|-------------------------------|--------|-----------|----------|--------|-----------|----------|--------|--------|----------|--------|-----------|----------|--------|--------|----------|--------|-----------|----------|--------|-----------------|---|------|
| | | | Sample No | 105-2318 | | | 106-1640 | | | 105-2319 | | | 106-1641 | | | 105-2320 | | | 106-1642 | | | | |
| | | | TEFs | ug/kg | TEQ1 | TEQ2 | ug/kg | TEQ1 | TEQ2 | ug/kg | TEQ1 | TEQ2 | ug/kg | TEQ1 | TEQ2 | ug/kg | TEQ1 | TEQ2 | ug/kg | TEQ1 | | | TEQ2 |
| Congener | | | | | | | | | | | | | | | | | | | | | | | |
| 2378-TCDF | | | 0.0011 | 0.0001 | 0.0001 | 0.0008 | 0.0001 | 0.0001 | 0.0011 | 0.0001 | 0.0001 | 0.0009 | 0.0001 | 0.0001 | 0.0006 | 0.0001 | 0.0001 | 0.0015 | 0.0001 | 0.0001 | | | |
| 12378-PCDF | | 0.100 | 0.0010 | 0.0000 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | | | |
| 23478-PCDF | | 0.050 | 0.0015 | 0.0008 | 0.0008 | 0.0005 | 0.0003 | 0.0003 | 0.0009 | 0.0004 | 0.0004 | 0.0007 | 0.0004 | 0.0004 | * | 0.0001 | 0.0000 | 0.0010 | 0.0005 | 0.0005 | | | |
| 123478-HxCDF | | 0.100 | 0.0030 | 0.0003 | 0.0003 | 0.0005 | 0.0001 | 0.0001 | 0.0015 | 0.0001 | 0.0001 | 0.0007 | 0.0001 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0011 | 0.0001 | 0.0001 | | | |
| 123678-HxCDF | | 0.100 | 0.0016 | 0.0002 | 0.0002 | 0.0004 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0008 | 0.0001 | 0.0001 | 0.0009 | 0.0001 | 0.0001 | | | |
| 234678-HxCDF | | 0.100 | 0.0013 | 0.0001 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0012 | 0.0001 | 0.0001 | | | |
| 123789-HxCDF | | 0.100 | * | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | | | |
| 1234678-HpCDF | | 0.010 | 0.0138 | 0.0001 | 0.0001 | 0.0033 | 0.0000 | 0.0000 | 0.0086 | 0.0001 | 0.0001 | 0.0042 | 0.0000 | 0.0000 | 0.0025 | 0.0000 | 0.0000 | 0.0101 | 0.0001 | 0.0001 | | | |
| 1234789-HpCDF | | 0.010 | * | 0.0000 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0008 | 0.0000 | 0.0000 | | | |
| OCDF | | 0.001 | 0.0429 | 0.0000 | 0.0000 | 0.0112 | 0.0000 | 0.0000 | 0.0299 | 0.0000 | 0.0000 | 0.0105 | 0.0000 | 0.0000 | 0.0091 | 0.0000 | 0.0000 | 0.0385 | 0.0000 | 0.0000 | | | |
| 2378-TCDD | | 1.000 | * | 0.0002 | 0.0000 | * | 0.0001 | 0.0000 | * | 0.0002 | 0.0000 | * | 0.0001 | 0.0000 | * | 0.0002 | 0.0000 | * | 0.0002 | 0.0000 | | | |
| 12378-PCDD | | 0.500 | 0.0008 | 0.0004 | 0.0004 | 0.0003 | 0.0001 | 0.0001 | * | 0.0001 | 0.0000 | * | 0.0001 | 0.0000 | * | 0.0001 | 0.0000 | * | 0.0001 | 0.0000 | | | |
| 123478-HxCDD | | 0.100 | 0.0008 | 0.0001 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0005 | 0.0001 | 0.0001 | | | |
| 123678-HxCDD | | 0.100 | 0.0017 | 0.0002 | 0.0002 | 0.0007 | 0.0001 | 0.0001 | 0.0014 | 0.0001 | 0.0001 | 0.0006 | 0.0001 | 0.0001 | * | 0.0000 | 0.0000 | 0.0017 | 0.0002 | 0.0002 | | | |
| 123789-HxCDD | | 0.100 | 0.0010 | 0.0001 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | * | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 | | | |
| 1234678-HpCDD | | 0.010 | 0.0483 | 0.0005 | 0.0005 | 0.0132 | 0.0001 | 0.0001 | 0.0216 | 0.0002 | 0.0002 | 0.0122 | 0.0001 | 0.0001 | 0.0111 | 0.0001 | 0.0001 | 0.0340 | 0.0003 | 0.0003 | | | |
| OCDD | | 0.001 | 0.4377 | 0.0004 | 0.0004 | 0.1115 | 0.0001 | 0.0001 | 0.2195 | 0.0002 | 0.0002 | 0.1036 | 0.0001 | 0.0001 | 0.0913 | 0.0001 | 0.0001 | 0.2973 | 0.0003 | 0.0003 | | | |
| TEQ (Nato) | | | | 0.0037 | 0.0034 | | 0.0012 | 0.0011 | | 0.0019 | 0.0015 | | 0.0012 | 0.0010 | | 0.0009 | 0.0005 | | 0.0024 | 0.0021 | | | |
| Average (TEQ1+TEQ2)/2 µg-TEQ 2378 TCDD/kg | 0.0167 | | | 0.0035 | | 0.0011 | | | 0.0017 | | | 0.0011 | | | 0.0007 | | | 0.0023 | | | 0.00085 | CCME ISQG for freshwater (based on 2378 TCDD) | |

Concentration higher than SSGV