Review Criteria and Detection Limits for Metals

(1/12/2015)

The target method detection limits in soil should be used for the totals analysis and the target method detection limit in water should be used for leachate analysis (TCLP or SPLP). If all the sample results for the totals analyses are below the statewide default background, the soil water partitioning (SWP) criteria, based on where the project is located, in the second column, or site specific background concentration (Background), the sediments are considered to be uncontaminated. If one or more sample results are above the Background or the SWP concentration, the 95% Upper Confidence Level (UCL), of the mean, of all the samples is computed. If this result is equal to or less than Background or the SWP criteria the sediments are considered to be uncontaminated. If the UCL is above Background or the SWP criteria leachate testing is required. To be considered uncontaminated the UCL of the leachate testing must be below the groundwater criteria AND the totals testing must be below the soil criteria. If either of these criteria is exceeded restrictions will be placed on the disposal of the material. Guidance on developing a site specific background or assistance in computing the UCL can be found in the Sampling Strategies and Statistics Training Materials for Part 201, Cleanup Criteria found at http://www.michigan.gov/documents/deq/deq-erd-stats-s3tm_250015_7.pdf .

Chemical	Statewide Default Background Levels Found in the Part 201 Criteria Tables (PPM)	Groundwater Criteria (µg/l)**/ SWP Criteria (PPM)	Target Method Detection Limit in Water (µg/l)	Soil Criteria (µg/kg)	Target Method Detection Limit in Soil (µg/kg)
Arsenic	5.8*	10	1	7,600	100
Cadmium**	1.2	1.3 / 1.6 2.2 / 2.6 2.5 / 3.0	0.2	5.5E+5	50
Copper**	32	5 / 29 9 / 52 13 / 75	25	2.0E+7	1,000
Lead	21	4	3	4.0E+5	1,000
Mercury (Inorganic)	0.13	0.0013	0.2	1.6E+5	100
Selenium	0.41	5	5	2.6E+6	500
Zinc**	47	66 / 65 120 / 120 170 / 170	20	1.7E+8	1,000

* - see attached table for allowable arsenic background concentrations in certain areas of the State

** - default criteria based on hardness of receiving waters.

1st number used for the UP

2nd number used if project tis north of M -46

3rd number if project is south of M-46

Review Criteria and Detection Limits for PNAs and PCBs

(1/12/2015)

The target method detection limits (TMDL) in soil should be used for the totals analysis and the TMDL in water should be used for leachate analysis (TCLP or SPLP). If all the sample results for the totals analyses are below the TMDL in soil the sediments are considered to be uncontaminated. If one or more total analysis sample results are above the TMDL in soil, the 95% Upper Confidence Level (UCL), of the mean, of all the samples is computed. If this result is equal to or less than the TMDL in soil the sediments are considered to be uncontaminated. If the UCl for the total analysis is above TMDL in soil leachate testing may be required. Many of the parameters have a NLL (not likely to leach) under the groundwater criteria and leachate testing is not required for these parameters. To be considered uncontaminated the UCl of the leachate testing must be below the groundwater criteria AND the totals testing must be below the soil criteria. If either of these criteria is exceeded restrictions will be placed on the disposal of the material. Guidance on developing a site specific background or assistance in computing the UCL can be found in the Sampling Strategies and Statistics Training Materials for Part 201, Cleanup Criteria found at http://www.michigan.gov/documents/deq/deq-erd-stats-s3tm_250015_7.pdf .

Chemical	Groundwater Criteria (µg/l)	Target Method Detection Limit in Water (µg/l)	Soil Criteria (µg/kg)	Target Method Detection Limit in Soil (µg/kg)
Acenaphthene	38	5	4.1E+7	330
Acenaphthylene	52	5	1.6E+6	330
Anthracene	43	5	2.3E+8	330
Benzo(a)anthracene	NLL	5	20,000	330
Benzo(b)fluoranthene	NLL	5	20,000	330
Benzo(k)fluoranthene	NLL	5	2.0E+5	330
Benzo(g,h,i)perylene	NLL	5	2.5E+6	330
Benzo(a)pyrene	NLL	5	2,000	330
Chrysene	NLL	5	2.0E+6	330
Dibenzo(a,h)anthracene	NLL	5	2,000	330
Fluoranthene	210	5	4.6E+7	330
Fluorene	880	5	2.7E+7	330
Indeno(1,2,3-cd)pyrene	NLL	5	20,000	330
2-Methylnaphthalene	19	5	8.1E+6	330
Naphthalene	11	5	1.6E+7	330
Phenanthrene	2	5	1.6E+6	330
Pyrene	140	5	2.9E+7	330
PCBs	NLL	0.2	1,000	330