



Our Mission – To Protect the Health and Environment of all Kansans by Promoting Responsible Choices

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Our Vision – Healthy Kansans Living in Safe and Sustainable Environments



Groundwater Monitoring at Small Arid Landfills

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Groundwater Monitoring Regulations

- K.A.R. 28-29-103(f) requires a minimum of two downgradient wells and one upgradient well to accurately determine the groundwater flow gradient.
- Monitoring wells installed in the upper most aquifer or water-bearing zone.
- Monitoring wells sampled semiannually.

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Table 1 – Monitoring Constituents

- Includes volatile organic compounds or VOCs and two metals
- Reported in milligrams per liter (mg/L)
= parts per million (ppm) or
- Micrograms per liter ($\mu\text{g/L}$)
= parts per billion (ppb).
- Maximum Contaminant Level (MCL)
- $0.005 \text{ mg/L} = 5.0 \mu\text{g/L}$

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Table 1 – Volatile Organic Compounds

■ Benzene	0.005 mg/L
■ 1,2-Dichloroethane	0.005 mg/L
■ 1,1-Dichloroethene	0.007 mg/L
■ 1,2-Dichloropropane	0.005 mg/L
■ Ethylbenzene	0.700 mg/L
■ Styrene	0.100 mg/L

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Table 1 – more VOCs

■ Tetrachloroethane	0.005 mg/L
■ Toluene	1.000 mg/L
■ 1,1,1-Trichloroethane	0.200 mg/L
■ Trichloroethane	0.005 mg/L
■ Vinyl Chloride	0.002 mg/L
■ Total Xylene	10.0 mg/L

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Table 1 – Metals (Dissolved)

- Cadmium 0.005 mg/L
- Chromium (total) 0.050 mg/L

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Kansas Small Arid Landfills (SALs)

- 33 active SALs
- 20 out of 33 SALs have groundwater contamination below MCLs.
- Common contamination: TCE, PCE, vinyl chloride and metals.

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Small Arid Landfill Concerns

- Groundwater contamination levels.
- Future risk to continued operations.
- Proper screening of waste - HHW

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Groundwater Monitoring Challenges

- Declining water levels.
- If the water level drops below the bottom of the monitoring well, a new, deeper monitoring well must be installed.
- Some SALs are installing new and deeper monitoring wells.
- New monitoring wells are costly.

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Groundwater Sampling

- Recommended procedure: no purge sampling.
- HydraSleeve® Sampler
- Purging not required, saves time and money.
- Reduction in turbidity, better samples.
- Ideal in low yield wells.

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