



# Surface Water Monitoring at Landfills

Technical Memorandum 16.03

April 2016

Alaska Department of Environmental Conservation  
Division of Environmental Health  
Solid Waste Program

**Surface water monitoring** is required in accordance with 18 AAC 60.810 at solid waste facilities where surface water pollution is likely to endanger public health or cause a violation of water quality standards in 18 AAC 70.

A surface water monitoring program must include sample collection at Department-approved points of compliance. The points of compliance must be located:

- No more than 50 feet outside the waste management area boundary;
- On facility-owned land;
- Where the highest concentrations of hazardous constituents leaving the facility will most likely be detected; and
- Where impacts from sources other than the landfill will be minimized.

Sample collection must:

- Occur during high flow and low flow conditions each year unless another schedule is approved or required by the Department.
- Include parameters set out in 18 AAC 60.840 (40 C.F.R. 258, Appendix I constituents), although alternative or additional parameters may be required by the Department.

**Surface Water Monitoring Plan** - The owner or operator shall develop a surface water monitoring plan to include consistent sampling and analysis procedures designed to ensure that monitoring results provide an accurate representation of surface water quality at each location sampled. Sampling plans must be developed and followed using either the Quality Assurance/Quality Control criteria in chapter 1, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846), adopted by reference in 18 AAC 60.365, or another state-approved Quality Assurance Project Plan (QAPP).

The surface water monitoring plan must include:

- Facility information (location, local geology and hydrology, and monitoring program history)
- Surface water monitoring locations
- Monitoring schedule information
- Procedures, techniques, and standards for
  - Sample collection (refer to ADEC's Field Sampling Guidance)
  - Sample preservation and hold time
  - Analytical methods (**see 40 CFR Part 136**)
  - Chain of custody (COC) control
  - Quality assurance and quality control (QA/QC).

**Note:**

Samples should not be field filtered for analysis of dissolved concentrations. Total constituent concentrations as provided from the laboratory should be reported to the Department. Dissolved concentrations should be calculated from the reported total concentrations and also provided to the department. Refer to *The Metals Translator* (EPA 823-B-96-007) for the conversion calculation.

**Surface water** is defined by the ADEC's Solid Waste Program as water open to the atmosphere and subject to run-off as well as water from springs, wells, or other collectors directly influenced by surface water.

For those constituents for which water quality standards are hardness-dependent, the default hardness value of 30 milligrams per liter as calcium carbonate (30mg/L as CaCO<sub>3</sub>) should be used unless sample-specific hardness data is collected.

**Surface Water Quality Criteria** - Surface water monitoring results should be compared to the most stringent standard listed in 18 AAC 70.020(b), and Table I, Table II, Table III, and Table V (column A and column B) from the Water Quality Criteria Manual. If no water quality standard exists for a given constituent, naturally-occurring background concentrations or a health-based level approved of by the Department shall be used.

Corrective action may be prompted if:

- A statistically significant change in water quality is noted; **OR**
- A water quality standard is threatened or exceeded.

A statistically significant change in water quality may be determined by:

- Comparing downgradient compliance points to upgradient background surface water conditions; **OR**
- Evaluating concentrations at the compliance point over time.

**Note:** If comparing upgradient background to downgradient conditions, monitoring locations must be of the same water body type for standing waters and of the same stream for flowing waters. Characterization of pre-disposal conditions is recommended.

**Surface Water Monitoring Reporting** - Surface water monitoring results must be submitted to the Department after each sampling event and monitoring records maintained in the facility's operating record for at least five years. The Department must be notified in writing of any violations of water quality standards within 30 days of detecting the violation. Immediate notification is required if the violation occurs in water used as a drinking water source.

Any violations of water quality standards should be confirmed by resampling as soon as possible and before the next regularly scheduled monitoring event. If resampling confirms the exceedance, then ADEC Division of Water Compliance Program must be notified to coordinate the next course of action. Additional constituents monitoring and/or frequency of monitoring may be required.

• **References:**

- Alaska Department of Conservation (ADEC) Title 18 Alaska Administrative Code (AAC) Chapter 60. *Solid Waste Management* (April 2013)
- ADEC. 18 AAC 70 *Water Quality Standards* (April 2012)
- ADEC. *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (December 2008)
- ADEC. Division of Spill Prevention and Response, Contaminated Sites Program *Field Sampling Guidance*. (March 2016)
- US Code of Federal Regulations. Title 40, Chapter I, Subchapter D, Part 136. *Guidelines Establishing Test Procedures for the Analysis of Pollutants*
- United States Environmental Protection Agency (USEPA). *Resource Conservation and Recovery Act (RCRA) Waste Sampling Draft Technical Guidance, Planning, Implementation, and Assessment* (EPA530-D-02-002)
- USEPA. *The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion*. (EPA 823-B-96-007)
- USEPA. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846)