



Landfill Surface Water Monitoring

The Alaska Department of Environmental Conservation (ADEC) Solid Waste Program is providing this checklist to outline the minimum required content for a landfill surface water monitoring report. ADEC can and will require additional information on a site specific basis. This checklist is not intended as a comprehensive surface water monitoring guidance. For additional guidance please refer to your facility's approved Quality Assurance Project Plan (QAPP) and other ADEC Solid Waste Program guidance documents available at <http://dec.alaska.gov/eh/solid-waste>.

CHECKLIST DESCRIPTION		PAGE/SECTION
Project Management		
1.	Title page	
2.	Distribution list	
3.	Table of contents	
4.	List of tables – field parameters, summary data tables, etc.	
5.	List of figures – vicinity map, site map with facility boundary, facility infrastructure, monitoring locations, and predominant surface water flow directions	
6.	List of appendices – field logs, monitoring log forms, chain of custody and sample receipt documentation, statistical testing summaries, data set for statistical testing, all historic data, laboratory reports, data review, and analytical sensitivity confirmation documentation	
7.	List of acronyms and abbreviations	
Introduction		
8.	Name and location of facility	
9.	Brief description of purpose of report (specific quality standards, criteria, or objectives)	
10.	Project/Task organization - identify who conducted monitoring, prepared, reviewed and approved the report	
11.	Date of monitoring event	
12.	List the monitoring procedures followed, citing appropriate regulations, guidance, QAPP, etc.	
Background		
13.	Location - geographic location of facility including map(s)	
14.	Discuss the operational history of the facility and current permit status	
15.	Geology and hydrogeology	
	a. Description of local surface hydrology, geology, and hydrogeology of the area	
	b. Site map with all monitoring locations identified and prevailing water flow direction	
16.	Monitoring program overview – history and current status of monitoring program	
	a. Identify all monitoring locations and status (active or inactive, etc.)	
	b. Frequency of sampling and sampling schedule	
	c. Discuss any ADEC approved changes to monitoring program	
Description of Sampling Event		
17.	Date(s) of sampling	

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18.	Include a list of monitoring locations sampled during the monitoring event. If a monitoring location scheduled to be sampled was not included, discuss why, and how this may be addressed in the future.	
19.	Sampling procedure details	
	a. Who performed sampling	
	b. Well water level measurements (if applicable)	
	c. Water quality stabilization parameters (if applicable)	
	d. How samples were handled in field (collected in one day or over several days, how samples were stored until shipment to lab, how samples were shipped to lab, etc.)	
	e. Analytical laboratory sample collection – which constituents were sampled, order of sampling, sample containers, preservation and hold times	
	f. Field instrument/equipment use, maintenance, calibration	
	g. Description of field Quality Assurance (QA)/Quality Control (QC) - field duplicates, equipment blanks, trip blanks	
	h. Sampling documentation – field logs, monitoring log forms, Chain of Custody (COC)	
20.	Discuss any field sampling issues	
	a. Sheen	
	b. Odor or color	
	c. Extreme field parameters measured	
	d. Problems with equipment during sampling	
	e. Surface water sampling location site issues (inaccessible, damaged markers, etc.)	
Laboratory Analysis		
21.	Analytical lab(s), including appropriate certifications	
22.	Analyses performed by lab and analytical methods	
23.	Analytical turn-around time (TAT) – standard TAT is 30 days	
24.	Discussion of detection limit adequacy to meet monitoring program objectives	
25.	Discussion of analytical results – which constituents were detected	
26.	Summary of results should be included in report text, but all analytical results should be provided in a table format (electronic file acceptable)	
Quality Control		
27.	Review the approved QAPP and discuss any non-conformances in, including but not limited to, sampling, lab analyses, analytical sensitivity confirmation, or reporting.	
Data Interpretation/Statistical Analysis		
28.	Identify applicable criteria	
	a. Solid Waste Program Surface Water Standards Table	
29.	Discuss apparent detections/exceedances of monitored constituents (Appendix I, Appendix II, Table F, other)	
30.	Statistical evaluation of results (if applicable)	
	a. Identify data used for statistical test such as: the historical data set used; how duplicates, non-detects (NDs), and qualified results were used; and outliers and rationale for excluding. (Note: The complete data set used, preferably in electronic format such as Excel, should be provided in the report for review purposes.)	
	b. Identify statistical tests used including error rates	
	c. Provide statistical testing summary sheets	

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31.	Discuss statistical validation of detections, exceedances, trends, correlations, etc.	
32.	Notify ADEC within 14 days of owner/operator receiving sample results indicating any statistical changes, increasing trends, or exceedances of Surface Water Standards Table values	
Analytical Results Table		
33.	Sample ID (include field sample ID and corresponding laboratory ID)	
34.	Identify sample location as background or compliance point	
35.	Parameter tested [gasoline-range organics (GRO), volatile organic compounds (VOCs), etc.]	
36.	Analytical method (AK101, SW8260, etc.)	
37.	Detection limits	
38.	Quantitation limits	
39.	Results comparison criteria and source of criteria	
40.	Present <i>all</i> results (not just detections or exceedances)	
41.	Units of measure	
42.	Flag qualified data	
43.	Report all ND results with associated detection limit	
44.	Identify detections and exceedances of criteria by bolding or highlighting	
45.	Include footnotes to define flags and all acronyms, and identify sources of criteria	
Summary and Recommendations		
46.	Summarize the results of laboratory and statistical analyses	
47.	Identify any potential problems or other monitoring program concerns	
48.	Discuss any quality control issues with sampling, lab analysis, or reporting	
49.	Discuss any deviations from the QAPP and any associated corrective actions	
50.	Provide recommendations for future monitoring events or corrective actions based on this report's findings	
References		
51.	List of references	
Required Attachments		
52.	Laboratory or monitoring report - each laboratory or monitoring report must include the detection limit, limit of detection, and limit of quantitation for each constituent in each sample	
53.	Field notebook and monitoring logs	
	a. Site conditions (weather, temperature, secure or not, etc.)	
	b. Well condition (secure, signs of tampering, damaged or destroyed, unable to locate)	
	c. Water level measurement data and purging/sampling data (if applicable)	
	d. Water quality data (turbidity, odor, color, conductivity, pH), and remarks	
	e. Sampling time, date, and sampler	
	f. Units of measurement on everything	
	g. All corrections to field notes should be made by marking a single line through and initialing and dating the change so that it remains legible	
54.	Laboratory data reports – should include all analytical results, QA/QC sample results, case narrative noting any laboratory QA/QC issues	
55.	COC Paperwork – original COC documenting sample custody from sampling, shipping (airway bill), to lab receipt (laboratory receipt form)	
56.	Data set for statistical testing, statistical results tables, control charts, etc. (if applicable)	

CHECKLIST DESCRIPTION		PAGE/SECTION
58.	Historical data file – all historic monitoring data should be provided with each report - preferably in electronic format (Excel)	



Monitoring report must be submitted to ADEC within 90 days of the sampling event.

If questions arise about what to include and discuss in a monitoring report, please contact your ADEC Solid Waste Program project manager.