Division of Environmental Health
SOLID WASTE PROGRAM

Quality Assurance Project Plan (QAPP)

SURFACE WATER QAPP REVIEW CHECKLIST — February 2022

The Alaska Department of Environmental Conservation (ADEC) Solid Waste Program is providing this checklist to outline the minimum required content for a Quality Assurance Project Plan (QAPP) (aka Surface Water Monitoring Plan) for landfill Surface Water monitoring. 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 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.	Project/Task organization – identify key project team members and their respective roles and responsibilities (facility manager, operator, environmental project manager, hydrogeologist, field sampler, chemist, statistician, etc.). This may be provided in a table format.	
Problem Formulation/Background		
5.	State purpose of plan, decisions to be made, or outcome to be achieved	
6.	Background information - historical, scientific, and regulatory perspective for the monitoring project including:	
	a. Facility location, local surface hydrology, geology and hydrogeology, and monitoring program history and current status	
	b. Identify all monitoring locations and current status (active or inactive, etc.)	
	c. Constituents monitored for and, as applicable, explain why any 40 CFR 258 Subpart G Appendix I or Appendix II constituents or 18 AAC 60 Table F constituents have been removed from the list, and attach ADEC approval letter	
7.	Applicable regulation or program – specific quality standards, criteria, or objectives	
	a. Type of monitoring and applicable regulations	
	b. Compliance criteria - Solid Waste Program Surface Water Standards Table	
Project/Task Description		
8.	Facility map with monitoring locations and predominant surface water flow direction and grading information	
9.	Monitoring schedule information	
	a. Frequency of scheduled monitoring events	
	b. Timing of scheduled monitoring events (or an acceptable range)	
Data Quality Objectives and Criteria		
10.	State all data quality objectives (DQOs) and specify performance criteria	
	a. Include a list of all monitoring locations to be sampled during each monitoring event	
11.	Indicate how non-conformance issues will be identified and documented, and the process for determining corrective actions	

	CHECKLIST DESCRIPTION	PAGE/SECTION
Special Training/Certification		
12.	Identify any specialized training or certifications required and provide documentation of that training for project team members	
Documents and Records		
13.	Describe and identify all documents that will be produced under QAPP, the format for those documents, how they will be distributed, and the document retention policy	
Data Generation and Acquisition		
14.	Sampling information	
	a. Sample identification	
	b. Number of samples	
	c. Sampling rationale	
Sampling Procedures		
15.	Sample collection equipment	
	a. Type of equipment used for sample collection	
	b. Certified pre-cleaned sample containers	
	c. Other consumables (Personal Protective Equipment, etc.)	
16.	Sample preservation and hold time (See CS *Field Sampling Guidance*)	
17.	Decontamination and disposal procedures (including field parameter screening equipment)	
	a. Use of disposable equipment	
	b. Decontamination of reusable equipment	
Field Sampling Performance Standards		
18.	Instrument checks and calibration procedures	
19.	Identify how non-conformance issues will be identified and documented, and the process for determining corrective action.	
Sample Handling and Chain of Custody (COC) Procedures Describe how chain of custody will be maintained from sample collection through delivery to the lab. *(Note: Labs must maintain COC if they transfer samples to another lab.)*		
20.	How field procedures will be documented	
	a. Field log	
	b. Monitoring sampling forms	
	c. COC form	
21.	Sampler credential requirements	
22.	Sample collection and management in the field (sample storage, etc.)	
23.	Sample transport to lab (hand delivered, Gold Streak, etc.)	
Analytical Methods		
24.	Analytical lab and applicable certifications or approvals	
25.	Analytical methods (Method name and SW-846 method number)	
26.	Detection and quantitation limits for all monitored constituents (Detection Limit, Limit of Detection, and Limit of Quantification must be provided by laboratory, refer to Department of Defense (DoD) fact sheet for definitions).	
27.	Confirmation of analytical detection limit adequacy to meet monitoring program objectives (prior to analysis)	
28.	Confirmation of laboratory adequacy for analytical limit reporting requirements (prior to analysis). Refer to DoD factsheet for reporting requirements.	

	CHECKLIST DESCRIPTION	PAGE/SECTION
29.	Analytical turn-around time (TAT) – standard TAT is 30 days	
30.	Identify who will manage lab contract to ensure all lab analyses are done in accordance with QAPP	
Quality Control (QC)		
31.	Field equipment use, maintenance, and verification – including manufacturer manual, instrument calibration and frequency, use, decontamination, calibration verification	
32.	Field QC samples	
	a. Field duplicates – identify procedures and frequency (1 per 10 samples or at least 1 per sampling event)	
	b. Trip blank – must be submitted with all volatiles samples [gasoline-range organics (GRO), volatile organic compounds (VOC), ethylene dibromide (EDB), etc.]	
	c. Temperature blank – must be included in each sample cooler	
33.	Laboratory QC Samples	
	a. Method blanks	
	b. Lab duplicates	
	c. Lab control spike/duplicates	
	d. Matrix spikes/duplicates	
	e. Surrogate Spikes	
34.	Data Quality Objective Evaluations	
	a. Accuracy	
	b. Precision	
	c. Completeness	
	d. Sensitivity	
	e. Comparability	
	f. Representativeness	
35.	Data assessment - describe how data will be assessed for usability.	
	a. Data reduction – what result will be used (See CS Tech Memo Treatment of Non-Detect Values, Data Reduction for Multiple Detections and Comparison of Quantitation Limits to Cleanup Values)	
	i. Field duplicates – use most conservative (highest for compliance; lowest for background)	
	ii. Results from multiple analyses – use more definitive method or most conservative result	
	b. Comparison to DQOs – detection limit adequacy, compliance with QA/QC criteria	
	c. Guidelines for identifying and handling non-conformances (what to do when things go wrong)	
	d. Corrective actions (reanalysis, reporting data with qualifications, resampling, etc.)	
	e. Data qualifications	
	i. How data will be qualified (flagged) – provide reference to EPA's National Functional Guidelines or other guidance	
	ii. Define data flags to be used	
	iii. Impact on data usability – biased high or low or rejected (cannot be used at all)	

	CHECKLIST DESCRIPTION	PAGE/SECTION
Data Management Describe how data will be managed from generation to final reporting.		
36.	Record keeping	
37.	Data storage and retrieval – all historical monitoring data should be available	
38.	Data handling	
39.	Programs/software used to process, compile, and analyze data (Access, Excel, etc.)	
Statistical Approach (If Applicable) Identify the following:		
40.	Statistical approach	
41.	Error levels	
42.	Distribution testing	
43.	Data reduction for statistical analysis	
	a. Duplicate data – use more conservative result (highest for compliance; lowest for background)	
	b. Non-detects	
	i. Kaplan-Meier or bootstrap method recommended where sufficient data available (depends on percentage of NDs)	
	ii. Highest ND detection limit if not enough data	
	iii. Analytical limit used for non-detect results	
	c. All qualified data – should be used as is (discuss any potential bias as an uncertainty). Rejected data should not be used at all	
	d. Statistical outliers – include background testing procedures and evaluation criteria for eliminating any data point; outliers may only be eliminated in background analysis unless field or lab error can be confirmed	
	e. Trend analysis – include method and whether or not the analyses are used to look for trends over time or if it is used to look at seasonal variability	
Reporting		
44.	Reporting schedule – frequency of reporting (quarterly, semi-annual, annual) and when reports will be submitted (within 90 days of sampling event)	
45.	Retesting and resampling reporting schedule (if applicable)	
46.	Report format – electronic draft, red-line strike-out review, final hardcopy with CD, etc.	
47.	Review process	
	a. Who develops reports?	
	b. Who reviews them?	
	c. Review schedule	
	d. Reconciliation of comments and final approval	

Resources

- ADEC Solid Waste Program guidance documents: http://dec.alaska.gov/eh/solid-waste.aspx
- ADEC CS *Field Sampling Guidance*: http://dec.alaska.gov/spar/csp/guidance-forms/
- Department of Defense (DoD) Fact Sheet: https://www.denix.osd.mil/edqw/home/what-s-new/unassigned/detection-and-quantitation-fact-sheet/
- ADEC CS Tech Memo *Treatment of Non-Detect Values, Data Reduction for Multiple Detections and Comparison of Quantitation Limits to Cleanup Values*: http://dec.alaska.gov/spar/csp/guidance-forms/