

GUIDANCE FOR WASTEWATER SAMPLING COMPLIANCE

The Alaska Pollutant Discharge Elimination System (APDES) Program is responsible for issuing permits and authorizations for wastewater discharge.

Questions specifically about compliance with permits and authorizations should be directed to the Wastewater Compliance Program.

The APDES general permit includes general requirements for monitoring and reporting that apply to all facilities that discharge to surface waters.

The APDES discharge authorization is the site-specific approval to discharge under the general permit and includes additional monitoring requirements, sampling locations/types/frequencies, and effluent limits.

A Quality Assurance Project Plan (QAPP) is required under APDES permits and authorizations. It is the responsibility of the permittee to develop the QAPP. It is essentially an instruction manual for how to collect and analyze the required wastewater monitoring samples specific to each permitted facility.

Environmental Data Management System (EDMS): An online data management system that can be accessed by DEC agency staff, external partners, the public, and regulated communities to create and manage applications, submissions, reports, inspections, and other compliance activities.

Total Discharge Flow Measurement: Total Discharge Flow is the volume of treated effluent being released into the receiving body of water within a set time. Reference the authorization for the sampling type and frequency.

Process Control Sampling: Each Wastewater Treatment Plant (WWTP) is different and some may have modified processes such as submerged membrane bioreactors. The required sampling methods for these specialized processes may not be listed in the APDES permit, but should appear in the facility's QAPP. Failing to perform this sampling regularly and respond to the data accordingly can make it difficult to comply with permit limits.

INFLUENT SAMPLE COLLECTION	EFFLUENT SAMPLE COLLECTION
Collect influent samples (raw wastewater, pre-treatment) at the location specified in the discharge authorization and QAPP. See authorization for sampling type and frequency. Common sampling types are grab samples (a single instantaneous sample collected at a particular place and time) and composite samples (at least eight equal volume grab samples). 24 hour composite sample means a combination of at least eight discrete samples of equal volume collected at equal time intervals over a 24-hour period at the same location.	Collect effluent samples (treated wastewater ready to discharge) at the location specified in the discharge authorization and QAPP. See authorization for sampling type and frequency. If a sample port is used, purge before collecting the sample. If there is no sample port, then collect the sample from the end of the outfall pipe. If collecting sample from a manhole or other open tank after the last treatment cell or lagoon, then collect a water sample 8 to 12 inches beneath the surface or mid-way between the surface and the bottom if the water is shallow.

HOLD TIME	SAMPLES TESTED ON SITE WITHIN 15 MINUTES		WHY THIS MATTERS
	MAX HOLD TEMP		
15 minutes — 42.8°F 6°C		pH Collect sample water in a clean approved plastic or glass bottle from the effluent source and follow the manufacturer's instructions for pH sampling and testing. Fresh buffers should be used for calibration , do not reuse buffer solutions for this step. Like sampling records, all calibrations for instrumentation must be recorded.	Wastewater operators provide an essential service for the community and the surrounding ecosystems. Self-monitoring protects the body of water the system discharges into and is a good way to ensure the facility is functioning properly. The following sections highlight what each required sampling metric measures and why they are important for human and environmental health.
15 minutes — 42.8°F 6°C		Total Residual Chlorine (TRC) Monitoring for TRC is not required if chlorine is not used as a disinfectant or introduced elsewhere in treatment – check your authorization for specific requirements. Collect the sample water in an approved clean plastic or glass bottle from the effluent source and follow the manufacturer's instructions for sampling and testing. Like pH, TRC meters will need to be calibrated in accordance with the manufacturer's instructions prior to each use. If the test kit requires reagents, always use Total (not Free) DPD chlorine reagents that are not expired.	Total residual chlorine measures the remaining chlorine in treated effluent. While used to disinfect, chlorine is toxic to aquatic life if discharged in even small concentrations. Sampling ensures safe concentrations are released into the receiving body of water to protect aquatic life. Sampling also promotes efficiency of water treatment and the disinfection processes.
15 minutes — 42.8°F 6°C		Dissolved Oxygen (DO) Some sampling methods can be deployed directly into the effluent source while others require the collection of water from the effluent source in a clean BOD bottle with glass top. If collecting water in a container for analysis, do not leave room for air as this could introduce more oxygen and skew the test results. Process sample as instructed.	DO measures the amount of oxygen available in water for aquatic organisms. In treatment systems, aerobic bacteria need oxygen to break down organic matter—supporting pollutant removal and preventing foul odors. Low DO can also suffocate fish in the receiving body of water.
HOLD TIME	SAMPLES ANALYZED IN A LAB		WHY THIS MATTERS
	MAX HOLD TEMP		
6 hours* — 46.4°F 8°C		Fecal Coliform (FC) Bacteria Bacterial test kits often come with a Temperature Blank so labs can measure the temperature of your shipment without contaminating the sample. Refrigerate Temperature Blank until the sample is ready for transport. Do not rinse sample bottle, it contains sodium thiosulfate (Na ₂ S ₂ O ₃) as a preservative. Check your authorization and permit for sampling frequency and be sure to collect from the effluent source . Remove the cap, hold the cap with the inside facing down to avoid contamination, fill the bottle to the shoulder, and cap tightly. Invert bottle 5 times to mix in preservative. Place sample and Temperature Blank with ice packs and ship ASAP!	This metric measures the levels of fecal coliform bacteria present in the effluent discharge. Fecal coliform bacteria is found in the intestines of humans and warm-blooded animals. High levels pose risks to public health and can indicate disfunction in the treatment system. This metric is a good way to test for the general presence of fecal matter, but FC is less specific to human waste, so testing for Enterococci and E. coli are used to verify fecal contamination in the effluent discharge.
6 hours* — 42.8°F 6°C		Enterococci — only necessary if discharging to marine water Refrigerate Temperature Blank until sampling. Do not rinse sample bottle, it contains sodium thiosulfate as a preservative. Check your authorization and permit for sampling frequency and be sure to collect from the effluent source . Remove the cap, hold the cap with the inside facing down, fill the bottle to the shoulder, and cap tightly. Invert bottle 5 times to mix in preservative. Place sample and Temperature Blank with ice packs and ship ASAP!	Enterococci is found in the intestines of humans and animals. It is used as a measure of fecal contamination in salt water. Elevated levels indicate potential contamination by human or animal waste, which may carry harmful pathogens. Monitoring helps protect public health, especially in waters used for recreation, shellfish harvesting, and subsistence fish processing.
6 hours* — 50°F 10°C		E. Coli — only necessary if discharging to fresh water Refrigerate Temperature Blank until sampling. Do not rinse sample bottle, it contains sodium thiosulfate as a preservative. Check your authorization and permit for sampling frequency and be sure to collect from the effluent source . Remove the cap, hold the cap with the inside facing down, fill the bottle to the shoulder, and cap tightly. Invert bottle 5 times to mix in preservative. Place sample and Temperature Blank with ice packs and ship ASAP!	Also found in the intestines of humans and animals, E. coli is used as an indicator organism for fecal contamination in freshwater. Its presence indicates recent contamination from human or animal feces and signals the potential for pathogenic illness. Monitoring helps protect public health, especially in waters used for recreation, subsistence fish processing, or as drinking water sources.
48 Hours — 42.8°F 6°C		Biochemical Oxygen Demand (BOD₅) Samples for analysis need to be collected from both influent and effluent sources to calculate percent (%) removal. Reference your authorization and permit for site-specific frequency and collection method. Fill each sample container all the way up with no room for air , gas stored in the bottle with the sample could skew the results.	BOD ₅ measures the amount of oxygen microorganisms need to break down organic matter in wastewater over five days. High BOD ₅ means more organic pollution, which can deplete oxygen in receiving waters and harm aquatic life essentially “suffocating” them. It also reflects how well the treatment system is removing biodegradable material.
7 Days — 42.8°F 6°C		Total Suspended Solids (TSS) Samples for analysis need to be collected from both influent and effluent sources to calculate percent (%) removal. Reference your authorization and permit for site-specific frequency and collection method. Avoid collecting large objects that are not representative of the average water conditions. Be careful not to collect water that has sediment from bottom disturbance as this would skew the results.	TSS measures the concentration of solid particles suspended (not dissolved) in wastewater. Monitoring TSS helps ensure effective pollutant removal and disinfection, which protects both public health and the environment. High TSS can reduce dissolved oxygen levels, increase turbidity, and disrupt aquatic ecosystems.

*While the hold time for these metrics is officially 8 hours, a lab needs at least two hours to receive and process the sample within the allotted time. Therefore, the sample needs to arrive at the lab within six hours after it is collected.
**Disclaimer: This document does not serve as a Quality Assurance Project Plan (QAPP). It is the responsibility of the permittee to understand and comply with the permit requirements. The above instructions for sampling are for commonly required parameters. Please review your APDES authorization for all sampling requirements. These instructions apply to AKG572000 (with a Design Flow at or below 250,000 gallons per day) and all AKG573000 permitted facilities.



Division of Water
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