2023 Small Commercial Passenger Vessel Sampling Regimes

COMMERCIAL PASSENGER VESSEL ENVIRONMENTAL COMPLIANCE (CPVEC) PROGRAM

National Geographic Sea Bird Blackwater Sampling Port, taken May 24, 2022

March 2023

Alaska Department of Environmental Conservation

Table 1. Annual Sample Frequency[A]

Vessel Category	Conv I Samples	Conv II Samples	Priority Samples	Nutrient Samples	Minimum Sample Events in AK [B]	Pre-Season (Outside AK, prior to entry)	Changes for 2023 and onward
1. AMHS (>50 lower berths)	4 [C]	1		1[D]	4 [C]	0	No changes, one sample event for every 3 months of service. Resamples (Conv I only) required for exceedance of Conv I parameters until resolved.
2. 100 to 249 lower berths	2	1		0	2	0 or 1[E]	2 samples per season, Conv I & II (No Priority/Nutrients). Resamples (Conv I only) required for exceedance of Conv I parameters until resolved.
3. 50 to 99 lower berths	1	1 (Every second year of operations in AK)		0	1	0 or 1[E]	2 samples per season, Conv I & II (No Priority/ Nutrients). Resamples (Conv I only) required for exceedance of Conv I parameters until resolved.
4. Short Term SCPV (less than 6 weeks in AK)	1	1 (Every second year of operations in AK)		0	1	0	1 sample per season, Conv I & II (No Priority/ Nutrients). Resamples (Conv I only) required for exceedance of Conv I parameters until resolved.
5. New Vessel (new MSD)	2	1		1	2	1[F]	2 samples per season, Conv I & II. One sample event for Priority & Nutrients to document effluent. Resamples (Conv I only) required for exceedance of Conv I parameters until resolved.

[A] Sampling guidance, required sampling determined by DEC. Nutrient Samples required for new vessels or MSD changes (upgrades/new installation).

[B] Conv II, Priority, & Nutrients samples will be taken at the same time as a Conv I sample event.

[C] Maximum 4 per year (not including resampling); 1 for every 3 months of operation in AK waters.

[D] Required after install of new MSD or after extensive lay-up (vessel out of service >9 months)

[E] If the SCPV received an NOV the previous season for an exceedance of a Conventional Parameter I, 1 pre-season representative sample will be required prior to entry into Alaska waters. This sample must be taken with proper start up and loading. Conditions are as follows:
1) For chemical-physical systems, start-up period is 1-2 days, with 50% or higher passenger capacity.
2) For biological systems, start-up period is 1-2 weeks (from empty MSDs), with 50% or higher passenger capacity.

[F] Pre-season samples for new vessels or new MSD, must also follow the above parameters for a representative sample with proper start-up and loading.

Field parameters must be measured at each sample event.

Samples apply to effluent from MSD system. ALL VESSELS will sample ALL distinct GW Tanks (not treated by MSD) for Conv I & Conv II parameters during their first sample event.

Table 2. Sample Parameters

Conventional I (Short List)	Conventional II	Priority	Nutrients
Fecal Coliform	Specific Conductance	Base/Neutrals and Acids	Total Organic Carbon
Total Suspended Solids	Settleable Solids	Volatile Organic Compounds	Nitrate/Nitrite
Biochemical Oxygen Demand (5 day)	Chemical Oxygen Demand	Total Recoverable Metals	Total Kjeldahl Nitrogen
Temperature [1]	Ammonia (Total)	Dissolved Metals (except Mercury)	Total Phosphorus
pH [1]	Oil and Grease		
Free Chlorine [1]	Hardness		
Total Chlorine [1]	Alkalinity		

[1] Field measurements.
Refer to the Vessel Specific Sampling Plan and Quality Assurance Project Plan for sample source information, and analyte groupings and minimum grouping for resampling.

2023 Small Commercial Passenger Vessel (SCPV) Sampling Guidance

This document outlines the Alaska Department of Environmental Conservation (DEC) Commercial Passenger Vessel Environmental Compliance (CPVEC) Program sampling regime guidance for small commercial passenger vessels (SCPVs). This guidance document is intended only for vessels with an DEC approved Best Management Practices (BMP) Plan. SCPVs have overnight accommodations for 50-249 passengers as determined by the number of lower berths (AS 46.03.490). There are two groups of SCPVs:

- Small cruise ships
- Alaska Marine Highway System (AMHS) mainline ferries

Most SCPVs utilize basic Marine Sanitation Devices (MSDs) that are not capable of producing high quality effluent at the level of large cruise ships. Appropriate sampling frequencies for the various size classes of SCPVs that discharge in Alaska are determined primarily by the treated wastewater volumes (i.e., correlated to passenger number) and period of operation (e.g., year-round operations). Please note that individual ship requirements may vary based on past effluent sampling results, ship specific items, the approved BMP Plan, or any state permit. Sampling specifics, including the wastewater discharge operations, must be included in the Quality Assurance Project Plan (QAPP) and the annually approved Vessel Specific Sampling Plan (VSSP).

This guidance document is intended to provide general information on the type of sampling regimes required for SCPVs. SPVCs are required to adhere to the sampling frequency approved annually by the CPVEC Program. The CPVEC Program will work with each vessel to determine the appropriate sampling schedule based on the vessel itinerary. Vessels with passenger capacities of 250 or greater are not subject to this guidance and must receive authorization under the Large Commercial Passenger Vessel Wastewater Discharge General Permit prior to discharging.

Please check with the Environmental Protection Agency (EPA) if your vessel is subject the EPA Vessel General Permit (VGP). The VGP may require additional sampling and reporting requirements.

Please remember that it is illegal to discharge untreated sewage within 3 nautical miles of shore. Discharging untreated sewage nearshore has negative environmental, economic, and human health impacts, including:

- Contamination of shellfish beds
- Creation of areas with low oxygen levels in water that can harm fish and shellfish
- Spread of fecal bacteria and diseases to humans
- Creation of odors and visible residues that impact public perception of the cruise ship industry

Sampling Timeline:

SCPVs operating under an approved BMP are required to protect the environment to the maximum extent feasible (AS 46.03.462(k)). To demonstrate compliance with the discharge requirements of the BMP, SCPVs must be sampled within 10 days of initial entry into the marine waters of the State of Alaska[1] or, with prior DEC approval, when the vessel can access an Alaska port where sampling

[1] "Marine waters of the state" means all waters within the boundaries of the state together with all of the waters of the Alexander Archipelago even if not within the boundaries of the state (AS 46.03.490)

services are provided. SCPVs are subject to DEC sampling audits and DEC may perform or require additional sampling as necessary to implement AS 46.03.

Wastewater Treatment Operations:

SCPV wastewater sampling includes results for three main groups:

1. Treated Blackwater (BW, Sewage)
2. Treated / Untreated Graywater (GW)
3. Treated Mixed (BW+GW)

SCPVs that operate under an approved BMP Plan generally conduct wastewater treatment operations in one of the following ways:

- Treated Mixed (BW/GW): The vessel collects BW and GW together and treats this mixed wastewater through the MSD.
- Treated BW and Treated GW (MSD): The vessel collects BW and GW separately. BW flows to the MSD for treatment at a different time than the GW flows for treatment, but both are treated through the MSD.
- Treated BW and Treated GW (Tank): The vessel collects BW and GW separately. BW flows to the MSD for treatment. GW is stored in a separate tank and is manually chlorinated (treated) before it is discharged overboard.
- Treated BW and Untreated GW: The vessel collects BW and GW separately. BW flows to the MSD for treatment. Untreated GW is directly discharged overboard.

Configurations vary so it is important to describe the system accurately in the VSSP. SCPVs face common challenges due to their smaller size and vessel stability requirements that may limit wastewater treatment capacity. Accordingly, larger holding capacities or more advanced treatment systems are not always viable options for SCPVs.

Routine Sampling Regimes

Refer to Table 2 for information regarding the parameter types.

1. AMHS Ferries

A subset of SCPVs that applies only to mainline AMHS vessels with overnight accommodations. While passenger capacities on the mainline ferries typically range between 450 and 499, annual registrations submitted to DEC document lower berth capacities of less than 250. AMHS Ferries may be operated year-round, with passenger volume typically highest May to August. Some ferries are laid up or operated with reduced schedules during the winter. Each type of treated wastewater discharge must be sampled.

Sampling Regime:

- 1 Conventional Parameter I sample for every continuous three months operating in Alaska.
- 1 Conventional Parameter II sample and 1 Priority sample every calendar year.
- 1 Nutrients sample as needed: new MSD installation or for vessels laid up for > 9 months

2. 100 to 249 passengers (berths)

This size class represents approximately half of the small cruise ships operating in Alaska. The Alaska cruise ship season typically runs from April to October. Some vessels at the upper range of this class may have Advanced Wastewater Treatment Systems.

Sampling Regime:

- 2 Conventional Parameter I samples every calendar year.
- 1 Conventional Parameter II sample and 1 Priority sample every calendar year.
- Vessels with distinct GW treatment (e.g., not treated through MSD system: 1 Conventional Parameter I / Conventional Parameter II (Priority/Nutrient Sampling not required) Samples required
- Vessels with GW direct OB drains are not required to sample GW from these sources.
- If the SCPV received an NOV the previous season for an exceedance of a Conventional Parameter I, 1 pre-season representative sample will be required prior to entry into Alaska waters. This sample must be taken with proper start-up and loading. Conditions are as follows:
    - For chemical-physical systems, start-up period is 1-2 days, with 50% or higher passenger capacity.
    - For biological systems, start-up period is 1-2 weeks (from empty MSDs), with 50% or higher passenger capacity.

3. 50 to 99 passengers (berths)

This size class represents approximately half of the small cruise ships operating in Alaska.

Sampling Regime:

- 1 Conventional Parameter I sample every calendar year.
- 1 Conventional Parameter II sample and 1 Priority sample every other year of operations in AK waters.
- Vessels with distinct GW treatment (e.g., not treated through MSD system: 1 Conventional Parameter I / Conventional Parameter II (Priority/Nutrient Sampling not required) Samples required
- Vessels with GW OB drains are not required to sample GW from these sources.
- If the SCPV received an NOV the previous season for an exceedance of a Conventional Parameter I, 1 pre-season representative sample will be required prior to entry into Alaska waters. This sample must be taken with proper start-up and loading. Conditions are as follows:
    - For chemical-physical systems, start-up period is 1-2 days, with 50% or higher passenger capacity.
    - For biological systems, start-up period is 1-2 weeks (from empty MSDs), with 50% or higher passenger capacity.

4. Short Term: SCPVs operating <6 weeks in Alaska

Several small commercial passenger vessels sail for less than six weeks in Alaska during the summer season. Sampling must occur during the Alaska cruise season.

Sampling Regime:

- 1 Conventional Parameter I sample every calendar year.
- 1 Conventional Parameter II sample and 1 Priority sample every other year of operations in AK waters.
- Vessels with distinct GW treatment (e.g., not treated through MSD system: 1 Conventional Parameter I / Conventional Parameter II (Priority/Nutrient Sampling not required) Samples required

- Vessels with GW OB drains are not required to sample GW from these sources.

5. New Vessels or New MSD

This includes new ships, ships that have not operated in Alaska in the last three years, or ships outfitted with an MSD new to the vessel. Sampling must occur during the Alaska cruise season that the vessel first arrives in Alaska.

DEC will require sampling for BW and will evaluate which GW sources will be included if wastewater is not mixed. Note that the vessel will need to obtain a Conventional I sample from the MSD unit prior to arrival in Alaska to demonstrate that discharges will not be a threat to public health or the environment (18 AAC 69.046). Samples taken in Alaska waters will be taken from all potential sources of BW or GW (treated or untreated) discharge.

Sampling Regime:

- **Prior to arriving in Alaska:** 1 Conventional I sample during the calendar year.
- 2 Conventional Parameter I samples during the calendar year. The second sample must occur six weeks prior to the vessel ending operations in Alaska.
- 1 Conventional Parameter II sample and 1 Priority sample during the calendar year.
- 1 Nutrients sample during the calendar year.
- The first Conventional Parameter I pre-season sample will be required prior to entry into Alaska waters. must be taken with proper start up and loading. Conditions are as follows:
  - For chemical-physical systems, start-up period is 1-2 days, with 50% or higher passenger capacity.
  - For biological systems, start-up period is 1-2 weeks (from empty MSDs), with 50% or higher passenger capacity.

Sampling Results Discharge Performance

For delayed or missed sampling events: The operator must immediately notify DEC by phone or email and the vessel's Environmental Compliance staff must engage with the sampling contractor to reschedule at the earliest opportunity.
Terms of sampling: When the operator cannot sample in accordance with the terms of the DEC approved VSSP or Quality Assurance Project Plan (QAPP) [e.g., sampling valve issues that prevent a representative sample], the operator must immediately notify DEC by phone or email and coordinate any necessary changes to remedy the situation.

For all cases, the operator should email the general Cruise Ship email at DEC.WQ.Cruise@alaska.gov or call the Cruise Ship Program Manager at 907-465-5138.

Within 2-3 days of the sampling event, the vessel must provide the preliminary fecal coliform, total suspended solids, and chlorine results to DEC CPVEC.

If sampling results exceed the limitations on discharges outlined in AS 46.03.463, the vessel must:

- Investigate the root cause of the exceedance.
- Keep treated effluent discharges to a minimum when in Alaska State waters and discharge at the maximum distance from shore possible in the area the ship is transiting.
- Take and document corrective actions.
- Submit a Corrective Action Report to the CPVEC Program.
- Resample as soon as possible once corrective action is taken. Typically, at the next port of call where

sampling can be coordinated to ensure sample can be returned to the laboratory to meet holding times (as outlined in the QAPP).

The CPVEC Program will review and may propose follow up actions which include re-sampling to establish the wastewater treatment discharge performance.

The following parameters are required for re-sample events:

- Fecal coliform
- Total suspended solids
- Free chlorine
- Total chlorine
- pH
- Temperature

DEC Contacts

The most recent DEC staff contact information can be found at: https://dec.alaska.gov/water/cruise-ships/cruise-contacts/