

2019 Annual Compliance Report Cruise Ship Wastewater

COMMERCIAL PASSENGER VESSEL ENVIRONMENTAL
COMPLIANCE (CPVEC) PROGRAM



February 2020



Cover Photo: Overboard valve locking regime aboard the Grand Princess (OR photo, 2019)

Alaska Department of Environmental Conservation

Abbreviations:

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AMHS	Alaska Marine Highway System (State Ferry System)
AS	Alaska Statutes
AWTS	Advanced Wastewater Treatment Systems
BMP	Best Management Practices
BOD	Biological Oxygen Demand (sampled parameter)
BW	Blackwater
CLIA	Cruise Lines International Association
COD	Chemical Oxygen Demand (sampled parameter)
CPVEC	Commercial Passenger Vessel Environmental Compliance
FC	Fecal Coliform (sampled parameter)
GP	General Permit
GW	Graywater
MSD	Marine Sanitation Device
ND	Non-detect value
NOV	Notice of Violation
QAPP	Quality Assurance Project Plan
SC	Specific Conductance (sampled parameter)
LCPV	Large Commercial Passenger Vessel
TSS	Total Suspended Solids (sampled parameter)
VSSP	Vessel Specific Sampling Plan

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INTRODUCTION

This compliance report is prepared annually by the Alaska Department of Environmental Conservation (ADEC or the Department) Division of Water Commercial Passenger Vessel Environmental Compliance Program (CPVEC or the Program). The intent of this report is to provide information on the Program’s wastewater monitoring and compliance efforts with cruise ship pollution.

Forty large (40) cruise ships operated in Alaska in 2019. ADEC issued discharge authorization under 2013DB0004 (2014 GP) to 24 ships and of those 18 ships discharged treated wastewater and conducted sampling in Alaska waters.

The complete 2019 wastewater sampling report, *[2019 Large Cruise Ship Wastewater Report Rev1 Final.pdf](https://dec.alaska.gov/water/cruise-ships/cruise-reports/)*, can be found at: <https://dec.alaska.gov/water/cruise-ships/cruise-reports/> .

WATER QUALITY SUMMARY

Objective 1:

All regulated commercial passenger vessels operating in marine waters of the state shall have current, timely, and active permits, authorizations, or plans approved by the Department, as required by state law, which ensure protection of human health and water quality and are based on sound science, technology, and economics.

Authority. AS 46.03.462 requires commercial passenger vessels obtain and comply with terms and conditions of permits or meet all standards established for the protection of ambient water quality when discharging into Alaska marine waters.

Results. The CPVEC program receives notices of intent to discharge under the general permit for qualifying vessels. All authorizations were granted before vessel discharges in state waters.

2014 GP Authorizations:	For 2019, 7 new General Permit (GP) authorizations were granted, 1 previous GP Authorizations were revised, and 28 active GP Authorizations remain in place.
Best Management Practices (BMP):	3 Approvals covering 4 ships for 2019. The BMP law expired in 2015 and was not replaced until late 2017. The operation of small cruise ships and ferries in 2016 and 2017 occurred under a No Action Assurance Memo. 2 recent new built vessels operated under Conditional BMP Plans.

Objective 2:

Commercial passenger vessels comply with all terms and conditions required by state and federal law and water quality standards are maintained.

Authority. AS 46.03.100 require the permitting and compliance of wastewater discharge permits in the State of Alaska.

Results. Twenty two (22) effluent permit exceedances were reported in 2019, compared with 26 effluent exceedances in 2018.

Products

Sample Events:	260 large cruise ship effluent samples and 34 small cruise ship effluent samples were collected for monitoring analysis
Enforcement:	15 alleged violations of permit effluent standards and 3 reported spills or unauthorized discharges of wastewater / pool water resulted in the issuance of a total of 15 Notices of Violation.
Compliance:	Settlement of the 15 Notices of Violation is ongoing, settlements were reached on the effluent exceedance NOV's the closures are pending.
Monitoring:	<p>In addition to sampling, the Program monitors several areas of interest specific to small cruise ships that may have environmental impacts:</p> <ul style="list-style-type: none">• Small vessel Marine Sanitation Devices (MSD) II performance and capability• Concerns with fecal coliform levels found in average effluent results of small vessels• High chlorine levels, particularly during resample events, where higher dosing is used as a means to lower fecal coliform counts• Concerns with discharges of untreated or partially treated wastewater

Large cruise ship operators reported 22 exceedances of the 2014 GP out of 260 wastewater samples; 15 daily maximum (or minimum) limits and 7 exceedances of monthly limits. Table 1 lists 2019 exceedances of general permit limits by pollutant type. Table 2 list unauthorized discharges and spills of wastewater or pool waters. Table 3 lists exceedances of GP limits.

The Department has concerns regarding the upward trend of 2014 GP Fecal Coliform (FC) Daily Limit exceedances. Effluent sampling resulted in 1 exceedance in 2017, 4 exceedances in 2018, and 9 exceedances in 2019. This equates to a 300% increase in FC exceedances from 2017 to 2018 and a 125% increase between 2018 and 2019.

Enforcement. The Department issued 15 notices of violation (NOV) in 2019 for alleged violations of wastewater effluent limits. Settlements were reached on the effluent exceedance NOVs are pending.

Compliance. The Department monitored wastewater discharges from large vessels for BOD, TSS, fecal coliform, pH, and chlorine, ammonia, and dissolved copper at frequencies established in the general permit. Daily/monthly limits for these parameters of interest were established in the 2014 GP, enforced during the 2015 through 2019 Cruise Ship Seasons.

BMP Vessels. The overall effluent quality from small commercial passenger vessels and state ferries has improved since the implementation of the BMP plans. Additional work is still needed on some ships to meet the standards for suspended solids, fecal coliform, BOD, and chlorine.

REPORTS. Data results are available from the CPVEC Program on request, and summaries are available at <http://dec.alaska.gov/water/cruise-ships/cruise-reports/>.

TABLES

Table 1. 2019 Wastewater Exceedances of GP Daily Limits

Parameter (Daily Limit)	Exceedances	Total Samples
Fecal Coliform (FC)	9	256
pH	1	260
TSS	0	257
BOD	0	257
Chlorine	0	259
Ammonia	3	158
Copper	2	150
Nickel	No Limit in 2014 GP	48
Zinc		49
Parameter (Monthly Max)	Exceedances	Total Samples
Fecal Coliform (Geo Mean)	7	256

Table 2: 2019 Wastewater Reported Spills and Unauthorized Discharges

Ship	Discharge	Location	Rep. Volume	ADEC Action
Eurodam	Pool Water Discharge (EPA VGP)	Glacier Bay	0.9 m3	Closed
Ruby PCL	Hot Tub Water Discharge (EPA VGP)	Glacier Bay	2.3 m3	Closed
Radiance of the Seas	Treated Waste Water Discharge (from Tankage)	Skagway	7.5 m3	NOV

Table 3. 2019 Wastewater Sampling: GP Exceedances

Vessel	Sample Date	Sample Number	pH	Total Cl	Fecal Coliform [1]	Fecal Monthly GeoMean	BOD	TSS	Ammonia	Dissolved Metals		
										Copper	Nickel	Zinc
		UNITS	SU	mg/L	FC/100mL		mg/L	mg/L	mg/L	µg/L		
Millenium	05/15/19	AE 22282	7.56	0	> 600	35	22	9.6	58	11	6.7	66
Millenium	05/29/19	AE 22485	7.43	0	2		2.2	4				
Maasdam	05/19/19	AE 22350	7.27	0	23	48	0	0	50	2.4		
Maasdam	05/21/19	AE 22338	7.25	0	100		0	0	58	6.8		
Bliss	08/06/19	AE 23007	6.9	0	0	24	7.7	8	38	1.6		
Bliss	08/20/19	AE 23232	7.01	0	> 600		5.2	7.2	40	2.3		
Jewel	06/06/19	AE 22456	6.96	0	0	1	6.5	4.8	32	1.3	3.8	36
Jewel	06/20/19	AE 22656	7.07		110		10	4	33.8	5.7		
Le Soleal	8/1/2019	AE 23266	7.06	0	400	67	0	0	8.1			
Le Soleal	8/3/2019	AE 22997	7.25	0	370		0	0	14			
Le Soleal	8/27/2019	AE 23371	7.37	0	2.00		0	0	41			
Island Princess	05/04/19	AE 22153	6.83	0	> 600	35	3.5	0				
Island Princess	05/12/19	AE 22172	7.18	0	2		0	0	7	3.5	6.2	50
Royal Princess	06/05/19	AE 22451	7.93	0	0	----	8.7	0	180	2.3	12	80
Royal Princess	09/03/19	AE 23393	8.00	0	0	----	14	0	170	2.2	13	97
Regatta_Port	05/25/19	AE 22417	8.49	0	0	----	14	4.8	140	47		
Regatta_Port	06/26/19	AE 22799	7.08	0	68	68	2.2	4	7.7	18		
Regatta_Stbd	05/25/19	AE 22418	7.1	0	0	----	3.9	0	55	79		
Regatta_Stbd	06/15/19	AE 22637	6.31	0	3	3	38	0	13	200		
Viking Orion	05/30/19	AE 22434	6.96	0	260	260	10	9.6	21	5.1		
Golden Princess	06/12/19	AE 22628*	5.31	0	0	----	0	0	3.8	49		

[1] Admiralty Environmental reported Fecal Coliform exceedances as >600 FC/100mL.

* GW Only Effluent Sample

- Parameter Result Exceeds Daily Maximum in Large Cruise Ship GP.
- Exceedance of Monthly GP Limits for Fecal Coliform (Geometric Mean); ----cannot calculate GeoMean.
- Parameters not tested or failed Quality Assurance (e.g. holding time not met).