

2023 Air Compliance Annual Report On Cruise Ships & State Ferries

AIR QUALITY COMPLIANCE PROGRAM



The *Celebrity Solstice*, operated by Celebrity Cruises, slips into Ketchikan through dense fog, September 2023



Alaska Department of Environmental Conservation

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	2
INTRODUCTION	3
COMPLIANCE MONITORING & ENFORCEMENT SUMMARY	4
PUBLIC COMPLAINTS SUMMARY	7

ABBREVIATIONS AND ACRONYMS

AAC:	Alaska Administrative Code
ADEC:	Alaska Department of Environmental Conservation
AS:	Alaska Statute
CFR:	Code of Federal Regulations
COBC:	Compliance Order by Consent
DG:	Diesel Generator
ECA:	Emissions Control Area
EGCS:	Exhaust Gas Cleaning System
EPA:	United States Environmental Protection Agency
EU:	Emission Unit
GT:	Gas Turbine
HFO:	Heavy Fuel Oil
IMO:	International Maritime Organization
LSFO:	Low sulfur fuel oil (Sulfur content of 1.14%)
MGO:	Marine gas oil, a distillate fuel
MOU:	Memorandum of Understanding
NOV:	Notice of Violation
OFB:	Oil fired boiler
PM:	Particulate Matter
SO _x :	Sulfur oxides
SA:	Settlement Agreement
USFS:	United States Forest Service
UW:	Underway

INTRODUCTION

This report is prepared annually by the Alaska Department of Environmental Conservation's (ADEC) Division of Air Quality, Compliance Program (AQ Program). The intent of this report is to provide information on the air quality monitoring, compliance, and enforcement efforts with cruise ship and state ferry pollution.



Linblad Expedition's *National Geographic Sea Lion*, moored to Seadrome dock, Juneau, July 10, 2023

COMPLIANCE MONITORING & ENFORCEMENT SUMMARY

Objective. To protect the Alaskan environment by ensuring that air emissions from marine vessels in the state do not create unhealthy air. This is accomplished through the direct monitoring of the opacity of air emissions from cruise ships and state ferries.

The goal in monitoring opacity is to conduct consistent opacity readings primarily within Alaska's three busiest cruise ship ports: Juneau, Ketchikan, and Skagway. Additionally, both ADEC staff and the contractor will travel to other ports during the season to conduct readings. While the primary focus is to monitor large cruise ships, reasonable efforts are made by ADEC staff and the contractor to conduct opacity readings on small cruise ships and state ferries.

Authority. AS 46.03.488 & 18 AAC 50.070 establishes marine vessel visible emission standards.

Implementation. The regulation applies to visible emissions, excluding water vapor, of marine vessels within three miles of the Alaska coastline. The Air Quality (AQ) compliance program uses the US Environmental Protection Agency (EPA) Reference Method 9 (Method 9 or M9) readings to provide the source of data for determining compliance with marine vessel visible emission standards. This method has been approved by the EPA as part of the Federally Enforceable Air Quality Control State Implementation Plan under 40 CFR §52.70(28)(i). The AQ Program monitors environmental compliance, as well as the direct and indirect environmental effects of cruise ships and state ferries.

Compliance Monitoring. Compliance with opacity requirements is determined through use of Method 9 observations. Observations are made by trained ADEC staff and contracted opacity readers. The current contractor for opacity readings is FLAT LAKE Engineering LLC, based in Ketchikan, AK with additional staff in Juneau, AK.

The US Forest Service (USFS) signed on to a Memorandum of Understanding (MOU) with ADEC Division of Air to monitor air emissions and from marine vessels operating in Holkham Bay, Tracy Arm, Endicott Arm, and/or Stephens Passage. The latest MOU was executed May 22, 2023 and is effective through May 1, 2028. The USFS and ADEC coordinated to perform Method 9 observations while vessels were underway in Tracy Arm and Endicott Arm in July of 2023. The USFS provided the watercraft and operator while ADEC provided the certified opacity reader. In 2023, ADEC provided the necessary funding for three USFS personnel to become certified in Method 9.

2023 Results. Summaries of opacity results are available in Tables 1 to 4. Summaries of formal enforcement actions are available in Tables 5 to 10.

Compliance: 425 Method 9 readings performed
Enforcement: 6 Readings of Interest (two for same vessel) are still under investigation, though no formal determination has been made.

COMPLIANCE

Table 1: 2023 Contractor Opacity Readings

Location	Readings
Juneau	200
Ketchikan	60
Skagway	61
Haines	18
Hoonah (Icy Strait Point)	7
Sitka	17
Seward	0
Whittier	0
Total Opacity Readings	363

Table 2: 2023 ADEC Opacity Readings

Location	Readings
Juneau	16
Ketchikan	0
Skagway	17
Haines	2
Hoonah (Icy Strait Point)	7
Sitka	16
Whittier	1
Tracy Arm	3
Total Opacity Readings	62

Table 3: 2023 Opacity Reading Count by Port

Port	Readings
Juneau	216
Ketchikan	60
Skagway	78
Haines	20
Hoonah (Icy Strait Point)	14
Sitka	33
Whittier	1
Tracy Arm	3

Table 4: Opacity Readings Per Year Summary

Year	Readings
2015	343
2016	388
2017	552
2018	480
2019	447
2020	12
2021	533
2022	524
2023	425



Royal Caribbean Cruise's *Brilliance of the Seas* docked at Sitka's X, May 16, 2023.

Enforcement Action Update

1. Alaska Department of Transportation and Public Facilities, Alaska Marine Highway System (AMHS): AMHS entered into a Compliance Order by Consent (COBC) settlement effective June 6, 2022. The COBC is based on five counts of noncompliance events observed of the *M/V Kennicott* while it operated in Alaskan waters over the 2019 and 2020 operating seasons.

The COBC requires the Respondent to fully and timely perform, comply with and/or complete remedial measures, corrective actions, and other requirements (e.g., conduct two M9 observations every month the vessel operates in revenue service) as required by the Order.

Suspended payment: The suspended portion in the amount of \$187,500 shall remain suspended, and shall not become due, provided that the Kennicott complies with all conditions of this Order.

2023 Update: The *M/V Kennicott* was seasonally removed from revenue service on January 13, 2023. Annual overhaul activities including maintenance and repairs occurred through June 21, 2023, when it entered layup status until it began revenue service again on December 15, 2023. AMHS provided the required copy of the engine manufacturer’s service report on May 10, 2023, before the due date of 30-days following return to service. AMHS performed two Method 9 readings on December 18, 2023 in Ketchikan, AK: both exceeded State standards. AMHS submitted an Excess Emissions report on December 20, 2023, within the required 21 days following the event. These two M9 readings are not included in the total 2023 season M9 reading count.

Table 5: Violations Per Year Summary

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
Violations	0	0	2	9	7	4	3	14	6

Table 6: Opacity Violations Issued (2019)

Vessel	Date	Port	Status
Norwegian Joy	5/21/19	Juneau	Settled
Oceania Regatta	6/01/19	Sitka	Settled
Royal Princess	5/29/19	Skagway	Settled
Carnival Legend	6/29/19	Juneau	Settled
Ovation of the Seas	8/18/19	Juneau	Settled
AMHS Kennicott	8/21/19	Juneau	Settled
Silver Muse	9/08/19	Juneau	Settled

Table 7: Opacity Notice of Violations Issued (2020)

Vessel	Date	Port	Status
AMHS Kennicott	7/08/20	Juneau	Settled
AMHS Kennicott	8/05/20	Juneau	Settled
AMHS Kennicott	8/19/20	Juneau	Settled
AMHS Kennicott	10/07/20	Whittier	Settled

Table 8: Opacity Notice of Violations Issued (2021)

Vessel	Date	Port	Status
Ovation of the Seas	8/22/21	Juneau	Settled
Ovation of the Seas	10/4/21	Juneau	Settled
Ovation of the Seas	10/10/21	Ketchikan	Settled

PUBLIC COMPLAINTS RESPONSE SUMMARY

The Department catalogues all public responses and responds upon complainant request or if nature of complaint warrants additional inquiry. Important details complainants can provide the Department include date, time, name of subject vessel, location, the duration of the emissions exceedance, and a description of emissions with photos depicting vessel location in relation to complainant. The Department will conduct a M9 reading of the subject vessel if timing and staff availability allows, indicated by a “√” in Table 9, below. The number of public complaints received by the Department each year over the last decade is available in Figure 1 below.

The Department received 24 public complaints during the 2023 cruise ship season.

Table 9: 2023 CPVEC Public Complaints

Vessel	Date	Location	M9?	Description
Brilliance of the Seas	4/26/2023	Juneau	√	Call: emissions plume and diesel odor present. Complainant photos appear to be water vapor. M9 conducted with results below State standards.
Discovery Princess	5/14-21/2023	various	√	Web complaint: "I have been on 20 cruises and the exhaust coming from this ship stood out from the others...once out of view of port, the exhaust became a heavy yellow sulfur color and blanketed the sky in a dark haze. This occurred throughout the Inside Passage and Endicott Arm. I have never filed a complaint before but I was so disturbed by [the] thick smoke." Associated photos substantiate complaint. One M9 recorded of vessel during subject week: 5/17/23; results below State standards.
Discovery Princess	9/13/2023	Juneau	X	Web complaint: subject vessel "spewing thick smoke continuously...whitish smoke at night in the dark...normal iPhones cannot capture the scene." No photos provided. No M9 conducted.
Nieuw Amsterdam	6/28/2023	Skagway	X	Web Complaint: vessel "belching thick black smoke from stack...obscuring background by 90%." Associated photo depicts 100% black emissions. No M9 conducted.
Norwegian Jewel	5/4/2023	Juneau	√	Email regarding haze. Complainant photos taken within hour of departure substantiate complaint. M9 results below State standards.
Norwegian Jewel	5/11/2023	Juneau	√	Local resident emailed with 1 photo/no text. M9 conducted: results below State standards.
Norwegian Jewel	5/18/2023	Juneau	X	Email: subject vessel "...was really throwing out the smoke as it left port today." Photo provided is too far to substantiate. No M9 conducted.

Table 9: 2023 CPVEC Public Complaints

Vessel	Date	Location	M9?	Description
Norwegian Jewel	6/8/2023	Juneau	√	Email: "Thick smoke from stack. I have a good view of the harbor and this is a common occurrence." No photos provided. DEC staff video recorded at approx. time of complaint substantiates complaint. DEC M9s (2) recorded two hours after complaint below State standards.
Norwegian Jewel	6/8/2023	Juneau	√	Call and email: emissions "filling the valley beyond the bridge." Complainant photo appears approx. 10% above State standards while moored; DEC video recorded earlier substantiates complaints; DEC M9s do not.
Norwegian Spirit	5/7/2023	Juneau	√	Web complaint: vessel "...emitting smoke throughout its time in port." Associated photo substantiates complaint. ROI recorded of subject vessel substantiates complaint.
Norwegian Spirit	6/4/2023	Juneau	X	Web complaint: concern over vessel's alleged use of "bunker fuel". Associated photos substantiate complaint. DEC certified inspector recorded video substantiating complaint. No M9 conducted.
Norwegian Spirit	6/4/2023	Juneau	X	Email regarding anchored vessel's emissions. No photos provided. No M9 conducted.
Norwegian Spirit	6/10/2023	Juneau	X	Email: "No other cruise ship has this sort of exhaust plume." Associated photo substantiates complaint. No M9 conducted.
Norwegian Spirit	6/18/2023	Juneau	X	Web complaint: vessel "spewing a great deal of gray smoke from smokestack." No photos provided. No M9 conducted.
Norwegian Spirit	7/2/2023	Juneau	√	Voice mail: "...watching blue-black smoke come out of cruise ship...Norwegian Spirit is spewing dark smoke." No photos supplied. Contractor recorded ROI of vessel substantiating complaint.
Norwegian Spirit	8/13/2023	Juneau	X	Email: Vessel "...emitting massive smoke plume over downtown Juneau." No photos provided. No M9 conducted.

Table 9: 2023 CPVEC Public Complaints


Vessel	Date	Location	M9?	Description
				
<p>Seven distinct public complaints were submitted on the <i>Norwegian Spirit</i>, pictured above at the AJ Dock on June 10, and anchored July 2 and August 27, 2023 in Juneau, AK</p>				
Norwegian Sun	5/14/2023	Juneau	X	Email regarding "large amount of smoke all day". Complainant photo substantiates complaint. No M9 conducted.
Norwegian Sun	5/14/2023	Juneau	X	Email with 1 photo depicting elevated opacity. "[Vessel] looks like this at all times when their engines are running. No other cruise ship that comes to Juneau has this sort of exhaust plume." Complainant photo substantiates complaint. No M9 conducted.
Norwegian Sun	6/18/2023	Juneau	X	Web complaint: vessel "spewing a great deal of gray smoke from smokestack." No photos provided. No M9 conducted.
Ovation of the Seas	6/14/2023	Juneau	X	Email regarding emissions with lack of wind, noted a haze over downtown despite clear conditions. Associated photo substantiates complaint. No M9 conducted.
Ovation of the Seas	10/1/2023	Juneau	√	Email regarding emissions with lack of wind, noted a haze over downtown despite clear conditions. Associated photo substantiates complaint. No M9 conducted.
Silver Muse	6/4/2023	Juneau	X	Email: "For the third Sunday in a row the cruise ship Silver Muse is belching smoke." No photos provided No M9 conducted.
Millennium Silver Muse Radiance of the Seas Norwegian Spirit Norwegian Sun	7/16/2023	Juneau	√	Email: "...blue crap smoke belching out of cruise ships" through "entire downtown area and neighborhoods...". No photos or additional information provided. ROIs recorded of Silver Muse, Norwegian Spirit, and Norwegian Sun

Table 9: 2023 CPVEC Public Complaints

Vessel	Date	Location	M9?	Description
				No M9s conducted of Millennium or Radiance of the Seas.
Unidentified vessel	7/20/2023	Juneau vicinity	X	After observing cruise ship navigating south between Portland and Admiralty Is., local resident emailed: "...emitting continuous stream of black smoke." No photos provided, subject vessel not identified. No M9s conducted on this date.

The following photos were submitted with some of the public complaints, above:



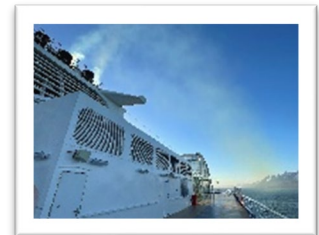
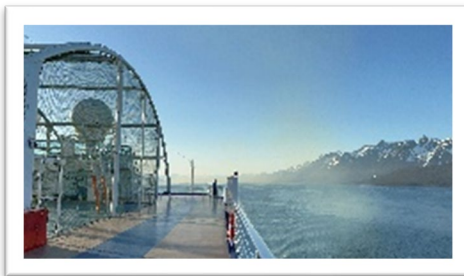
The *Norwegian Sun* and the *Ovation of the Seas* in Juneau on May 14, 2023



The *Norwegian Jewel* at the AJ Dock on May 11, 2023 in Juneau, AK



The *Nieuw Amsterdam* at the Broadway dock in Skagway, AK, on June 28, 2023



The three photos above were taken by a passenger of the *Discovery Princess* between May 14 and 21, 2023. Passenger included a "heavy yellow" color in emission description.

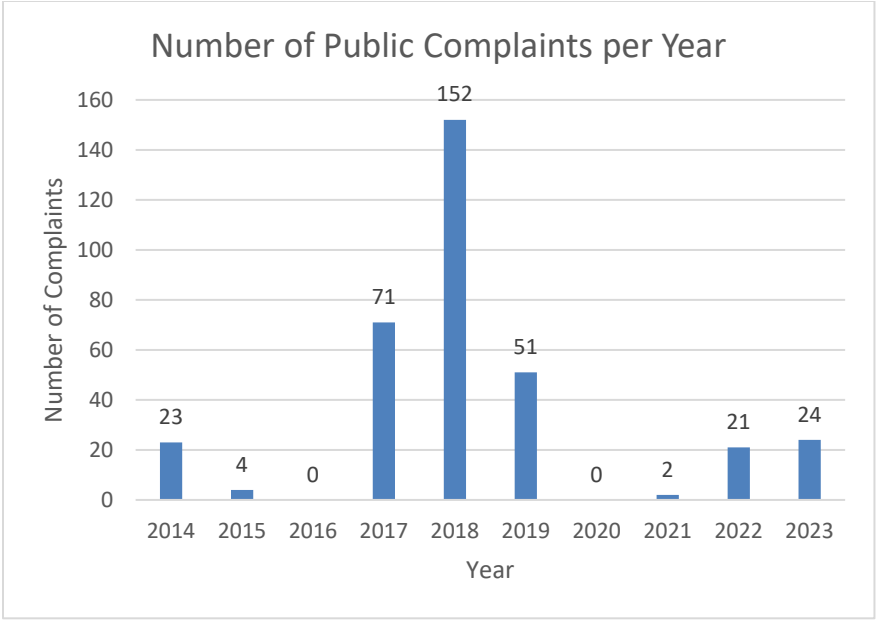


Figure 1: Complaints per season last decade