Commercial Passenger Vessel Environmental Compliance (CPVEC) Program – 2015 Seasonal Report

Figure 1: Coral Princess approx. 30 min outside of Juneau, AK – August (photo: Ed White)

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INTRODUCTION

This report is prepared annually by the Alaska Department of Environmental Conservations (ADEC, or the Department) Division of Water (DOW or the Division), Commercial Passenger Vessel Environmental Compliance Program (CPVEC, Cruise Ship Program, or the Program). The intent of this report is to provide information on the Program's monitoring and compliance efforts with cruise ship pollution and the status of the Ocean Ranger program.

AIR QUALITY PROGRAM SUMMARY

Objective 1: Maintain an effective compliance program that ensures the prevention of air pollution and the protection of public health related to commercial passenger vessels.

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

Implementation. The regulation is applied to cruise ship air quality. The CPVEC program uses EPA Reference Method 9 readings to provide the source of data for determining compliance with marine vessel visible emission standards. This method has been approved by the US Environmental Protection Agency (EPA) as part of the Federally Enforceable Air Quality Control State Implementation Plan under 40 CFR §52.70(28)(i). The CPVEC program monitors environmental compliance, as well as the direct and indirect environmental impacts of commercial passenger vessels.

Results. Statistically, the 2015 opacity readings were an improvement over 2014 results; however, still above average opacity in earlier years. Detailed summary of opacity results are available in Table 1.

Products

Readings:	343 Method 9 readings performed
Compliance:	25 alleged violations are currently outstanding and pending resolution
Enforcement:	19 alleged violations of 18 AAC 50.070 were settled or closed

In addition to monitoring for opacity and initiating enforcement actions for noncompliance, the Program is actively monitoring and studying the following significant points of interest that could result in direct or indirect environmental impacts as required under AS 46.03.488:

- Fuels: Wide use of Marine Gas Oil distillate fuels for compliance with emissions control area regulations for sulfur
- Scrubbers: Introduction and commissioning of exhaust gas scrubbers on select vessels with additional wastewater discharge into marine waters of the state

Enforcement. On March 25, 2015 the Department issued 19 notices of noncompliance for 49 alleged violations of visible emissions (opacity) exceedances. The alleged violations occurred between 2010 and 2014. Details are available in Table 2.

Compliance. Compliance with opacity requirements is determined through use of Method 9 observations. Method 9 observations are made by Department staff, the US Forest Service (USFS) through a Memorandum of Understanding (MOU) while vessels are underway in Tracy Arm, Alaska; or by contracted opacity readers. Shannon & Wilson, Inc. is the current contractor conducting opacity readings operating out of a regional office in Anchorage, AK with staff in Juneau, AK.

The Program's goal is to monitor the opacity of ships in as many ports in Alaska as possible with available resources. The Port of Juneau receives more cruise ship traffic than any other port in Alaska, with Skagway and Ketchikan having slightly less traffic. With CPVEC staff and the opacity contractor duty stations in Juneau, the majority of readings occur in Juneau. Department staff and the contractor travel to other ports during the season to conduct readings; however, due to travel costs and limited staff resources, proportional monitoring in other ports is not currently feasible. Table 3 summarizes the 2015 opacity reading data.

The Department has a duty to respond to public complaints regarding cruise ship pollution. Although public complaints, photographs, or other evidence of emissions exceedances are difficult to corroborate in our regulatory framework, the Program will often follow up complaints with an opacity reading by Department staff or the contractor. In any case of a complaint, vessel operators or owners are notified as

soon as possible so that mitigating steps may be taken. Table 4 summarizes opacity complaints received in 2015.

OCEAN RANGER PROGRAM SUMMARY

Objective 1: Ensure that Ocean Rangers are on board as many ships as possible to verify compliance.

Authority. AS 46.03.476 establishes the Ocean Ranger Program. The statute requires that all large commercial passenger vessels (LCPV) entering the marine waters of the state have an Ocean Ranger on board to act as an independent observer for the purpose of monitoring compliance with State and federal requirements.

Implementation. Ocean Rangers inspect enforceable conditions of State and federal requirements in an observer role only. Reports from Ocean Rangers are made from checklists and visual inspection of all areas onboard a cruise ship in Alaskan waters during voyages and while in port. Reportable days are when a ship is in Alaskan water for at least three hours in a day.

Results. In 2015 Ocean Rangers completed 1546 Daily Reports, which is an increase from 2014 primarily due to the increased number of in-port inspections conducted.

Products

Daily Reports:	1546 Daily Reports completed
Coverage Rate:	Ocean Rangers were aboard ships 67.8 % of the time ships were in Alaskan waters

Objective 2: Improve compliance to protect public health and the environment through actions taken to correct compliance concerns reported by Ocean Rangers. Actions can be taken by ADEC or the appropriate referral agency. Reduce the annual infractions identified aboard cruise ships by the Ocean Rangers.

Authority. AS 46.03.426(a) authorizes Ocean Rangers to ensure that passengers, crew, and residents at ports are protected from improper sanitation, health, and safety practices.

Results. Ocean Rangers reported 160 alleged noncompliance incidents. Details are available in Table 5

In addition to the above compliance categories in Table 5, the following additional observations or concerns were noted during the 2015 season:

- Scrubber effluent discharges and potentially negative impacts from these to ambient water
- Fleet wide combustion source inventory for assessing potential air emissions impacts
- Ocean Ranger access restrictions and their impediment to Ocean Ranger job duties as agents of the State

Compliance. When Ocean Rangers reported potentially noncompliant incidents, in all cases, the CPVEC Program immediately reported the condition to the cruise ship owner or operator. Standard procedure requires Ocean Rangers to inform a cruise ship's crew of potentially noncompliant conditions. In the case of an actual noncompliant condition, CPVEC staff worked with the owner or operator to stop or correct the condition.

The CPVEC Program also provides notification to other responsible state and federal agencies regarding potentially noncompliant conditions that fell outside of the jurisdiction of the Cruise Ship Program. CPVEC staff reported alleged noncompliant conditions to:

- Safety: U.S. Coast Guard Sector Juneau
- Health and Sanitation: U.S. Centers for Disease Control and Prevention, and the appropriate State of Alaska and local health agencies
- Vessel General Permit (VGP). U.S. Environmental Protection Agency (EPA)

- Oil Pollution Reporting: Because of the time-critical nature of oil pollution cases, Ocean Rangers submitted Oil Reports directly to ADEC's Division of Spill Prevention and Response and copied the Cruise Ship Program and other relevant parties as needed

Objective 3: Maximize the number of qualified Alaskans hired as Ocean Rangers.

Authority. AS 39.25.150(5) authorizes preferential hiring for local applicants when appropriate.

Results. Alaskan Ocean Ranger hires did not change from 2014 hire numbers.

Products

Alaskan Ocean Rangers:	4 of 19, or 21% of deployed Ocean Rangers were Alaskan residents in 2015

WATER QUALITY PROGRAM 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 – AS 46.03.463 require compliance with terms and conditions of discharge permits or standards established for the protection of ambient water quality for large or small commercial passenger vessels, respectively. Specific requirements for small vessel Best Management Practice (BMP) plans are found under 18 AAC 69.046(c).

Results. Beginning with the 2015 cruise ship season, large commercial passenger vessels (LCPV) began operating under the 2014 LCPV Wastewater Discharge General Permit (general permit) with terms and conditions that authorize discharges into a regulatory mixing zone. Small commercial passenger vessel discharges were covered under 18 AAC 69.046(c).

The CPVEC program receives notices of intent to discharge under the general permit for qualifying large vessels. Small vessels operate under best management practices (BMP) plans. All authorizations were granted before vessel discharges were intended to commence (arrival in marine waters of the state.)

Products

Large vessels:	18 General Permit Authorizations granted
Small vessels:	14 vessels operating under a BMP plan

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. The number of exceedances of permit standards for large vessel effluent samples decreased in 2015. Comparison of 2015 sampling with prior years is difficult as the permit limits and sampling frequency for some parameters changed significantly with the new general permit.

Products

Sample Events	220 effluent samples were collected for monitoring analysis
Enforcement	22 alleged violations of permit standards were settled or closed
Compliance	0 alleged violations are currently outstanding

In addition to effluent sample monitoring, the Program is actively monitoring and studying the following significant points of interest that could result in direct or indirect environmental impacts:

- Small vessel Marine Sanitation Devices (MSD) performance and capability
- Small vessel chlorine use in waste water treatment
- Concerns with fecal coliform levels found in average effluent results of small vessels
- Concerns with toxic pollutant and dissolved metal levels found in average effluent results of small vessels

Cruise ship operators reported 18 exceedances of 2014 General Permit daily maximum or minimum limits out of 220 samples taken. There were 14 exceedances of monthly limits. Fecal coliform and Biochemical Oxygen Demand had the highest number of daily limit exceedances with six each. There were two exceedances of pH limits. For dissolved metals there was one exceedance of copper. The remaining

exceedances were for Total Suspended Solids (one), and residual chlorine (two). There were no exceedances of the 2014 General Permit limits for ammonia. Table 6 lists 2015 exceedances of general permit daily limits by pollutant type.

Enforcement. On November 27, 2015 the Department issued 8 notices of noncompliance for 26 alleged violations of wastewater effluent limits and collected $47,520 in penalties.

Compliance. The Department monitored wastewater discharges from large vessels for biological oxygen demand, fecal coliform, pH, and chlorine, ammonia, and dissolved copper per frequencies established in the general permit. Data results for large vessels are available from the CPVEC Program on request.

The sampling requirements for small vessels are outlined in their individual vessel specific sampling plan. Treated wastewater samples were collected on board prior to point of discharge. Data results for small vessels are available from the CPVEC Program on request.

The 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. Areas of improvement include operators providing quicker notification and follow up corrective actions after high fecal coliform results were reported.

TABLES AND FIGURES

Abbreviations and Acronyms

AMHS: Alaska Marine Highway System
BOD: Biological Oxygen Demand
CCL: Carnival Cruise Lines
CEL: Celebrity Cruises
EPA: United States Environmental Protection Agency
HAL: Holland America Line
NCL: Norwegian Cruise Line
PCL: Princess Cruises
RCI: Royal Caribbean International
SIC: SilverSea Cruises
TSS: Total Suspended Solids
VGP: US EPA Vessel General Permit

Table 1: Opacity Data Summary

Year	2011	2012	2013	2014	2015
Number of Readings	220	150	340	382	343
Readings Below 20% Standard	90%	99%	90%	78%	80%
Average Opacity	10%	8%	10%	14%	14%
75th Percentile Opacity	13%	10%	10%	18%	18%
90th Percentile Opacity	23%	15%	20%	35%	30%

Table 2: Opacity Violations Issued

Line	Vessel	Date	Port	Status
CCL	Carnival Spirit	08/26/10	Tracy Arm	Pending
HAL	Amsterdam	05/06/10	Juneau	Pending
HAL	Amsterdam	05/13/10	Juneau	Pending
HAL	Ryndam	06/03/10	Juneau	Pending
PCL	Sea Princess	07/06/10	Haines	Pending
RCI	Radiance of the Seas	05/25/10	Juneau	Pending
RCI	Rhapsody of the Seas	05/25/10	Tracy Arm	Pending
HAL	Amsterdam	08/07/11	Ketchikan	Pending
HAL	Amsterdam	08/12/11	Anchorage	Pending
HAL	Oosterdam	06/15/11	Juneau	Pending
HAL	Zaandam	06/23/11	Juneau	Pending
NCL	Norwegian Jewel	08/15/12	Skagway	Settled
PCL	Island Princess	06/03/12	Juneau	Pending
CCL	Carnival Miracle	06/29/13	Juneau	Pending
CEL	Century	07/04/13	Juneau	Pending
HAL	Amsterdam	08/14/13	Ketchikan	Pending
NCL	Norwegian Jewel	08/12/13	Ketchikan	Settled
NCL	Norwegian Sun	08/14/13	Ketchikan	Settled
AMHS	Columbia	08/11/14	Auke Bay	Resolved
CEL	Century	07/14/14	Juneau	Pending
CEL	Century	06/05/14	Juneau	Pending
CEL	Millennium	06/17/14	Ketchikan	Pending

CEL	Millennium	06/10/14	Juneau	Pending
HAL	Amsterdam	06/27/14	AK waters	Pending
HAL	Oosterdam	05/22/14	Juneau	Pending
HAL	Oosterdam	05/23/14	Ketchikan	Pending
HAL	Oosterdam	06/10/14	AK waters	Pending
HAL	Oosterdam	06/26/14	Skagway	Pending
HAL	Oosterdam	07/23/14	AK waters	Pending
HAL	Oosterdam	08/06/14	AK waters	Pending
HAL	Oosterdam	08/14/14	AK waters	Pending
NCL	Norwegian Jewel	05/20/14	Juneau	Settled
NCL	Norwegian Jewel	06/03/14	Juneau	Settled
NCL	Norwegian Jewel	06/09/14	Ketchikan	Settled
NCL	Norwegian Jewel	06/25/14	Skagway	Settled
NCL	Norwegian Jewel	07/15/14	Juneau	Settled
NCL	Norwegian Jewel	07/16/14	Skagway	Settled
NCL	Norwegian Jewel	08/05/14	Juneau	Settled
NCL	Norwegian Jewel	08/20/14	Skagway	Settled
NCL	Norwegian Pearl	06/06/14	Ketchikan	Settled
NCL	Norwegian Pearl	06/25/14	Skagway	Settled
NCL	Norwegian Pearl	07/16/14	Skagway	Settled
NCL	Norwegian Pearl	08/20/14	Skagway	Settled
NCL	Norwegian Sun	06/25/14	Ketchikan	Settled
NCL	Norwegian Sun	07/18/14	Skagway	Settled
PCL	Crown Princess	06/05/14	Ketchikan	Pending
PCL	Island Princess	06/06/14	Ketchikan	Pending
RCI	Radiance of the Seas	07/16/14	Skagway	Pending
SIC	Silver Shadow	07/20/14	Juneau	Resolved

-Pending indicates a case is currently under negotiation
-Settled indicates an enforcement settlement has been reached
-Resolved indicates a case has been closed without formal enforcement

Table 3: Opacity Reading Count by Port

Port	Number of Readings
Anchorage, AK	2
Homer, AK	2
Juneau, AK	265
Ketchikan, AK	43
Seward, AK	4
Skagway, AK	25
Whittier, AK	2

Table 4: Opacity Complaints Summary

Date	Port	Vessel	Nature of Complaint
05/15/15	Juneau	Golden Princess	Significantly increase opacity, limited duration
05/30/15	Juneau	Coral Princess	High opacity
06/26/15	Juneau	Golden Princess	Increased opacity upon departure
08/06/15	Juneau	Zaandam	High opacity

Table 5: Ocean Ranger Alleged Noncompliant Incidents Reported

Alleged Noncompliant Condition	Number of Incidents Reported
Oil Pollution	35
Safety	26
Health	8
Wastewater	33
Other Waste	4
Air Pollution	40
EPA VGP Items	14
Boiler Blow Down	0
Total	**160**

Table 6 2015 Wastewater Exceedances of GP Daily Limits (220 samples)

Criteria	Number of Exceedances	Total Samples
Fecal Coliform	6	219
pH	2	220
TSS	1	217
BOD	6	217
Chlorine	2	220
Ammonia	0	138
Copper	1	136
Nickel	NA	0
Zinc	NA	0