



State of Washington Department of Ecology
Cruise Ship Memorandum of Understanding, Cruise Operations in Washington State Inspection Report

Northwest Regional Office

3190 160th Ave SE
 Bellevue, WA 98008

Phone: (425) 649-7000
 Fax: (425) 649-7098

Inspection Date September 25, 2021	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Evan Dobrowski & Amy Jankowiak
Entry Time: 09:06am Exit Time: 12:00pm	Photos Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Inspection Announced <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Discharges to: <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Dewater <input type="checkbox"/> POTW
Name and Location of Site Inspected: NIEUW AMSTERDAM, Holland America Line Pier 91 Seattle, Washington				Additional Participants/Inspectors:
On-Site Representative(s): Name/Title/Phone/e-mail Neda Domanovic, Environmental Officer				
Responsible Official(s): Name/Title/Address/Phone/e-mail Patrick McGuire, Vice President, Environmental Compliance Holland America Group 450 Third Avenue West Seattle, WA 98119 206-626-3889; Pmcguire@hollandamericagroup.com				Other Facility Data: Notification made to Patrick McGuire on September 13, 2021 Flag – Netherlands IMO #9378450

Section A: Areas Evaluated

<input checked="" type="checkbox"/> Black/Gray Wastewater System	<input checked="" type="checkbox"/> Residual Solids	<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Hazardous Waste/ Solid Waste	<input checked="" type="checkbox"/> Sampling/Monitoring
<input checked="" type="checkbox"/> Discharge Locations	<input checked="" type="checkbox"/> Operation & Maintenance	<input checked="" type="checkbox"/> Sludge Handling/ Disposal	<input checked="" type="checkbox"/> Oily Bilge Water	<input checked="" type="checkbox"/> Other

Section B: For Vessels Discharging ≥ 1nm from Berth and ≥ 6 Knots Only [2.1.3(A)]

<input type="checkbox"/>	Schematics Match Black/Gray Wastewater System	
<input type="checkbox"/>	Operations as Described in Submitted Documentation	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
<input type="checkbox"/>	Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if High Turbidity Occurs	
	<u>Turbidity or Equivalent:</u> Last Calibration: NOT APPLICABLE Trigger Level for Early Alarm: NOT APPLICABLE Trigger Level for Shutdown: NOT APPLICABLE Recorded Turbidity/Equivalent Levels Above Triggers:	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
<input type="checkbox"/>	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	<u>Disinfection Effectiveness Monitoring:</u>	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
<input type="checkbox"/>	Disinfection System Operated and Maintained Properly	
	Disinfection System:	

Section C: For Vessels Discharging Continuously [2.1.3(B)]

<input checked="" type="checkbox"/>	Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	Dry cleaning protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Unused or outdated pharmaceuticals management protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Fluorescent and Mercury Vapor Lamp Bulbs Managed Properly (prevent release of mercury)	Fluorescent and mercury vapor lamp bulbs protocols for management are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Waste reduction/reuse/recycling opportunities appear to be maximized per MOU requirements.
<input checked="" type="checkbox"/>	Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries management protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash management is consistent with MOU requirements.
<input checked="" type="checkbox"/>	Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge water protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Ballast Water Managed Properly (per Wash regs –reporting, treated or if open sea exchange >200 nm from outside EEZ, 50nm if not EEZ)	The vessel employs ballast water exchange outside 200 nm and treatment.
<input checked="" type="checkbox"/>	OCNMS rules and regs followed	The discharge protocols are consistent with MOU requirements and are not to occur in OCNMS waters.

Additional General Questions

<input checked="" type="checkbox"/>	How is deck runoff and hull cleaning handled (scuppers...) (non-toxic/phosphate free cleaners, biodegradable)	Deck runoff and hull cleaning protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	Outside vessel maintenance protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	Sculleries and Galleys – type of detergents and degreasers used (phosphate free and non-toxic)?	Restaurants and galleys use detergents and degreasers that are non-toxic and phosphate free.
<input checked="" type="checkbox"/>	How are food waste discharges handled (prevention of erroneous materials)?	Food waste discharge protocols are consistent with MOU requirements and records reviewed show no discharges in MOU related waters.
<input checked="" type="checkbox"/>	Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical sinks/floor drains are reported as connected to Blackwater.
<input checked="" type="checkbox"/>	Where is pool and spa water discharged? Dechlorinated/debrominated and underway?	Pool and spa water protocols are consistent with MOU requirements.
<input checked="" type="checkbox"/>	What type of fuel is used and percent sulfur content?	<0.1% sulfur fuel content used when in MOU waters or EGCS treated equivalent is used throughout the route.

Other:

Section F: Sampling Results

Parameter	Results
Biochemical Oxygen Demand 5-Day (BOD ₅)	NOT APPLICABLE
Total Suspended Solids (TSS)	
Fecal Coliform	
Residual Chlorine	
Ph	
Ammonia, Nitrogen	

Section G: Summary of Findings/Comments

Introduction

Evan Dobrowski, Washington State Department of Ecology (Ecology) Northwest Regional Office, Water Quality Program (NWRO-WQ) conducted the inspection of the Holland America Line's NIEUW AMSTERDAM on September 25, 2021. Amy Jankowiak, Ecology NWRO-WQ, assisted in conducting the inspection. The main contact on board the NIEUW AMSTERDAM was Neda Domanovic, Environmental Officer (EO) for the vessel. Prior notification of the visit was given on September 13, 2021 for security protocol. The purpose of the inspection was to evaluate compliance with the *Memorandum of Understanding Cruise Operations in Washington State* (MOU), as amended. The NIEUW AMSTERDAM is not approved to discharge wastewater in MOU waters.

The NIEUW AMSTERDAM launched in 2010, and is 936 feet long with about a 26-foot draft. The passenger capacity is approximately 2,100 with a crew capacity of about 900. The vessel has six engines and two azipods for propulsion. The NIEUW AMSTERDAM is scheduled for 11 port calls in Seattle for weekly, week long cruises to Alaska between July 24, 2021 and October 2, 2021.

Inspection

We arrived at the cruise terminal at Pier 91 and began by following COVID protocols. After receiving instructions, we boarded the ship at 9:06 a.m. and began with introductions and a plan for the day with Neda Domanovic, EO. We started in the Engine Control Room (ECR) and discussed various waste streams and discharge protocols and locations of discharges with Neda Domanovic along with additional staff. We viewed records and discussed systems and protocols. We then viewed the Exhaust Gas Cleaning System (EGCS), bilge treatment, and the Hamworthy membrane bioreactor advanced wastewater treatment system (AWTS) for blackwater and graywater treatment. We then toured the food waste, laundry, garbage room material sorting, and hazardous waste areas. The inspection was then finalized with a brief debriefing and we disembarked the vessel at 12:00 p.m.

Discharge Types and Protocols in MOU waters, Washington State waters or the Olympic Coast National Marine Sanctuary (OCNMS) (MOU related waters):

The discharge protocols are established at the start of the Seattle-Alaska season with voyage planning, meetings and trainings. A passage Plan is created for each stretch of the voyage. The Passage Plan includes each discharge type, the location of allowed discharges for that type, the planned estimated start and stop of each discharge type as well as remarks on local requirements. The Passage Plan for the current voyage depicts no discharges of any type listed (sewage or graywater, bio sludge, food waste, treated bilge water, incinerator operations, exhaust gas cleaning system, ballast water, additional operations such as ash scattering or soot blowing) within MOU related waters. In addition, there are regular departure meetings to go over the near-term plan, including Bridge staff, ECR staff, and the EO. As the vessel travels into the Strait of Juan de Fuca from Alaska (photo #02), all discharge valves to water are shut off 12 miles outside the OCNMS. Discharges are allowed again after exiting the Strait and more than 12 miles out to sea.

When in an area of allowed discharge, the protocol starts with the Bridge staff notifying the ECR staff that they are in an area of allowed discharge. A 30-minute notice is provided to ECR staff when coming within 12 miles for discharges to stop. All discharges are recorded both on paper logbooks as well as in their electronic NAPA system. Comparisons of the two data points are completed daily.

For black water and gray water, the latitude and longitude coordinates are recorded in the NAPA Permeate as their *Sewage and Graywater Discharge Record Book* (Sewage/Graywater Log), which is both manually on paper, electronically recorded and entered into NAPA, and was reviewed for recent discharges. The date, time and location of both the start and the stop of the discharges are recorded, along with the volume, discharge type, flow rate, and speed. The recent Sewage/Graywater Logs were reviewed and all discharges appeared to be outside of the MOU related waters.

Discharge Types

Blackwater and Graywater system (photo #04):

Black water and Graywater goes to one of 2 AWTS Hamworthy systems. Discharges take place outside of MOU related waters. Flow from the collection tanks first goes through screening presses (photo #15) with residual solids incinerated. Liquid moves by vacuum to the first stage of the bioreactor tank for biological treatment with air circulation. Liquid then moves to the inter-stage filters with solids going to the screenings tanks and liquid to the filtrate tank (photo #16) and second stage of the bioreactor tank for further aeration. Some solids can be sent back to the screening press or stage 1 of the MBR. Liquid from the bioreactor goes through the membranes for ultrafiltration then to the permeate tank and recirculated or discharged overboard. Prior to discharging overboard the effluent goes through final stage UV disinfection (photo #11).

Total suspended solids (TSS) (equivalent to turbidity) is monitored continuously at UV disinfection. If TSS exceeds 30 mg/l, the system automatically stops discharging and holds. PH is also monitored for adjustments. There are several monitors throughout the system that are used to access controls as well as in the ECR. The vessel conducts its own laboratory monitoring for process control, splits samples with a land-based lab for comparability.

Bilge:

Oily bilge water is collected to the oily bilge tank (photo #7) and is treated with a FACET and centrifugal oily water separator (COWS) (photo #08). The oily bilge is treated to less than 15 parts per million (ppm) oil content. Prior to discharge, the clean bilge is sent through "white box" (photo #10) which can't be bypassed and doesn't allow discharges of greater than 15 ppm. The treated oily bilge water is then discharged outside of MOU related waters at a maximum of 15 ppm, but typically 3-7 ppm, and outside of MOU related waters. The overboard discharge was locked during the inspection. The Chief Engineer has the one key to the white box, and discharges of clean bilge and offloads of oily sludge are recorded in the Oil record Book. No bypasses or re-routing around the OWS or white box has been known to occur. If there is any water other than bilge that combines with bilge water, it would be treated as bilge for treatment. The vessel also has the ability to pump out the bilge to shore-based collection.

Ballast and Pools:

Ballast water is treated on board as necessary with a filter and UV treatment system with exchanges done at greater than 200 nautical miles.. There are three main pools and five Jacuzzis. They are all treated with bromine and all discharges are done outside 12 miles after de-chlorination and pH balancing (outside MOU related waters).

Food Waste:

Food waste is sorted in the waste sorting room into screeners (photo #26) that feed the seven bio digesters (photo #25). Food is sent through a screener that screens out plastics and large items before going into the bio digesters which are located in the galley and waste sorting rooms. Galleys use Ecolab phosphate free and non-toxic detergents and degreasers. Food waste discharges are logged in the NAPA system and Garbage Record Book.

Outside Vessel:

Deck wash is done with NPDES VGP allowed materials (non-toxic, phosphate free, biodegradable cleaners) and processes and in international waters. Outside vessel maintenance such as paint chipping and painting would only be done at port with Port of Seattle permission following best management practices. Outside vessel maintenance has not been occurring at the Port of Seattle by this vessel this season.

Laundry:

Dry cleaning is not done on board. Laundry water is sent to Hamworthy treatment system and discharged outside of MOU related waters.

Medication:

Unused or outdated medications are sent back to manufacturer/pharmacy and narcotics are incinerated or offloaded as hazardous waste. Red bag waste in the medical facility is incinerated or offloaded as hazardous waste. Sharps are sent to the hazardous waste locker for off-loading as bio-hazardous waste. Drains from the medical facility go to the blackwater tanks.

Solid and Hazardous Waste:

Photo waste (photo #24) goes through a silver recovery unit with offloads when silver is less than 5 ppm. Tests are logged and kept. X-rays are done digitally without any waste. Fluorescent bulbs are crushed on board with a mercury vapor removal system (bulb crusher) or offloaded. Filters are offloaded as hazardous waste. Hazardous waste materials are stored separately and offloaded. Solid waste (garbage, recyclables (photo #20), etc) is collected, sorted, and either reused, recycled, incinerated (photo #20) or off-loaded to shore as appropriate. Waste minimization efforts are done by tracking, material usage analysis, and minimizing materials. Solid and hazardous waste is offloaded in Seattle during this route this season using Clean Harbors and Waste Management. Hazardous waste offload records were reviewed. The incinerator is used primarily for cardboard that can't be recycled and some soft plastics. Incinerator ash is offloaded after testing as non-hazardous waste.

EGCS:

ECA fuel-sulfur compliance is achieved either through the use of 0.1% sulfur content fuel when in MOU waters, or with higher sulfur heavy fuel oil (HFO) treated by the Ecospray EGCS to achieve equivalent emissions. Marine gas oil (MGO) is typically used when the EGCS is not in use. The vessel is also equipped for shore power, the vessel was on shore power at the time of inspection. The vessel's protocol is to not discharge ECGS washwater in MOU related waters as part of a voluntary pause. The vessel was bunkering fuel (photo #03) during the inspection. The vessel uses an open loop EGCS. Water is sent up the stack and spray nozzles clean the exhaust and send the water back down to a process tank and onto filtration (photo #05) before any discharge. Two engines of the four used for EGCS were using the soot filter, and the remaining two engines are dedicated for MGO fuel usage. In the open-loop mode, the volume of water is too high for filtration for all of the water (700-800 cubic meters/hour). Filtered soot is collected and offloaded as hazardous waste. Monitoring is done of both the air exhaust as well as the discharge water. Continuous emissions monitoring system (CEMS) (photo #06) measures pH, turbidity, PAH, and temperature at the influent, after the tower, and the effluent.

Conclusions and Recommendations

The protocols for discharges are clear. Records were orderly and appeared consistent with the MOU. The treatment systems appear to be operating well.

Attachments:
Photographs

Copies to:
Neda Domanovic, EO, Nieuw Amsterdam
Mark Toy, Health
Donna Spalding, CLIA-NWC
Alex Adams, Port of Seattle
Amy Jankowiak, Ecology
Evan Dobrowski, Ecology
Central Files: Holland America Line – NIEUW AMSTERDAM; WQ 6.1

Section H: Signatures

<u>Name and Signature of Inspector:</u>	<u>Agency/Office/Telephone:</u>	<u>Date</u>
Amy Jankowiak, Compliance & Technical Assistance Unit Supervisor 	Department of Ecology Northwest Regional Office Water Quality Program 206-594-0165	November 8, 2021
Evan Dobrowski, Stormwater & Maritime Compliance Specialist	Department of Ecology Northwest Regional Office Water Quality Program 206-594-0175	

**PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021**



Photo # 1 Image: IMG_0147 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: EGCS soot bag



Photo # 2 Image: IMG_0360 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Bridge – Navigation map



Photo # 3 Image: IMG_0361
Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Bridge – View of bunkering Fuel

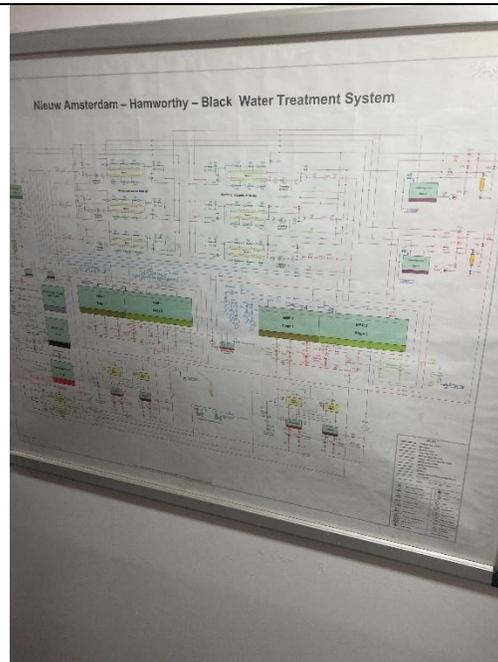


Photo # 4 Image: IMG_0326 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Hamworthy Schematic

PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021



Photo # 5 Image: IMG_0148 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: EGCS – soot filters



Photo # 6 Image: IMG_0146 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: EGCS – Continuous Emissions Monitoring System (CEMS)



Photo # 7 Image: IMG_0153 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Bilge – separation tank



Photo # 8 Image: IMG_0158 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Bilge – Centrifugal oily water separator

PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021



Photo # 9 Image: IMG_0165 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Hamworthy – interstage filters



Photo # 10 Image: IMG_0315 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Bilge – White Box



Photo # 11 Image: IMG_0171 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Hamworthy UV



Photo # 12 Image: IMG_0300 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: EGCS Seawater piping

PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021



Photo # 13 Image: IMG_0288 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Engine Control Room Key box

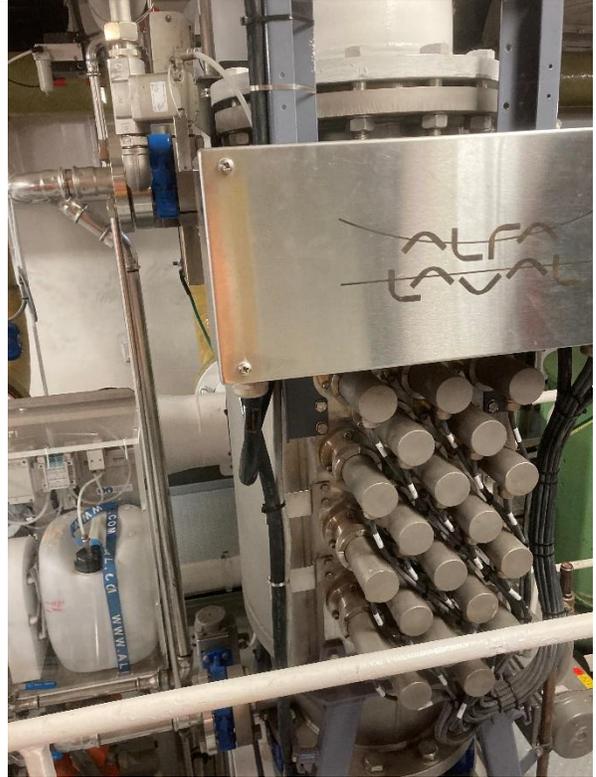


Photo # 14 Image: IMG_0333 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Alfa Laval Ballast Water UV



Photo # 15 Image: IMG_0314 Date: 9/24/2021
Taken by: Evan Dobrowski
Description: Hamworthy Screen press



Photo # 16 Image: IMG_0330 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Hamworthy Filtrate, Screening piping and pumps

PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021



Photo # 17 Image: IMG_0352 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Medical Waste



Photo # 18 Image: IMG_0164 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Cleaning Area drains to Hamworthy



Photo # 19 Image: IMG_0347 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Garbage Room (GR) - Compactor



Photo # 20 Image: IMG_0350 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: GR – incinerator shredder

PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021



Photo # 21 Image: IMG_0349 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: GR – Glass Crusher



Photo # 22 Image: IMG_0311 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Engine Room – Paint rags and Used oil filter storage



Photo # 23 Image: IMG_0338 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: GR – Hazardous Waste Storage



Photo # 24 Image: IMG_0175 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: GR – Hazardous Waste Storage – Photo Waste

**PHOTO ADDENDUM – NIEUW AMSTERDAM
HOLLAND AMERICA LINE
SEPTEMBER, 25, 2021**



Photo # 25 Image: IMG_0149 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Food Waste Collection tank



Photo # 26 Image: IMG_0342 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Garbage Sorting Room – Food Screener



Photo # 27 Image: IMG_0176 Date: 9/25/2021
Taken by: Amy Jankowiak
Description: Food Waste screener/bio-digester



Photo # 28 Image: IMG_0359 Date: 9/25/2021
Taken by: Evan Dobrowski
Description: Laundry – Chem storage