CROWLEY
People Who Know

Consolidated Additional Observations

This questionnaire combines all standard Additional Observation Questions in one condensed questionnaire.
1. SOx Emissions Controls
2. Ballast Water Project
3. Combustion Source Project
4. Food Waste Project
5. Sea Intake Project

Findings can be reported in the spaces provided for each item; feel free to use additional space for notes and information. Sketches, diagrams, photos of handwritten notes, or copies of schematics are welcome.

Several questions are checks on previous Additional Observations, check these against the previous observations. If a ship is required to have an additional observation project on a section below, skip the section below. For example if a combustion source project is required leave the section in this project blank.

A: General Information

Report Start Date:	May 21, 2018
Ocean Ranger starting report:	richard.ekstrom
Ship Name:	Holland Volendam
Ship Code:	HVO
Is this a revision of a previous report (Y/N)?	No

1: SOx Emissions Controls

1.1 Describe the SECA compliance plan.	The Volendam has scrubbers installed on three diesels; DG's 2, 3 and 5. DG #1 and 4 burn MGO exclusively. This season the ship intends to burn MGO after docking. With the scrubbers installed the ship will be in SECA Compliance provided mandated parameters are satisfied.
1.1 Completed by:	Richard Ekstrom (richard.ekstrom)
1.2 How does the vessel control SOX emissions in the ECA? Provide description. If the vessel used low sulfur fuels in AK describe the fuel switches and which combustion sources are operated on low fuel sulfur, and when.	Underway the ship will run on DG's equipped with scrubbers (DG's 2, 3 and 5) which will satisfy SOX emissions in the SECA provided limits are met. The ship will burn MGO after making fast to the dock. The in port filter has not performed to expectations and it was explained that a new self cleaning filter will be installed before the ship will attempt to use scrubber engines while in port. In special areas which require MGO be burned the pilot house will communicate ship's location to the ECR three hours prior to entering the area, and again at the two hour mark. The ship will then commence the fuel switch to MGO.
1.2 Completed by:	Richard Ekstrom (richard.ekstrom)
1.3 Is the vessel operating or installing an exhaust gas scrubber system in the 2018 Alaska Cruise Season? If yes, complete section 1A. Otherwise skip to section 2.	Yes

1.a: SOx Emissions Controls

1.4 Which combustion sources are coupled with the EGCS system?	Diesel engines 2, 3 and 5 are equipped with an EGCS.
1.4 Completed by:	Richard Ekstrom (richard.ekstrom)
1.5 EGCS units make, number, model, locations, fuel limitations (sulfur %).	EcoSpray "ECO DeSOx" Open Loop Seawater DeSOx Absorption System, manufactured by EcoSpray Texhnologies S.r.i., Alzano Scrivia,

	Alessandra, Italy. DG2 and DG3: PO# 1032142 DG3: PO#1031914 Location of DG's 2,3, and 5 scrubber equipment and pumps is primarily in the Incinerator Room areas adjacent to engines spaces which is located on several lower decks. The forward incinerator was removed to make room for the Scrubber equipment. The DeSOx Tower equipment is located in the Stack Fidley areas on several upper decks. The Intake for the scrubbers sea chest is located on Stbd side between Frames 100-104. The Overboard discharge for all 3 scrubbers is also located on the Stbd side between Frames 84-98. Fuel limitations: The ECO DeSOx Tower is dedicated to achieve a SO2/CO2 ratio of 4.3 while burning low sulfur HFO fuel with a max sulfur content 3.5% with engine load not to exceed 85% MCR
1.5 Completed by:	Philip Parent (philip.parent)
1.6 Scrubber type (closed, reagent cycle, combination or hybrid open-loop effluent to seawater)?	Wet Open Loop Type Scrubbers
1.6 Completed by:	Philip Parent (philip.parent)
1.7 System status (operational, commissioning, under construction)?	Operational
1.7 Completed by:	Philip Parent (philip.parent)
1.8 Provide a process description and waste flow/chemicals used (Gaseous emissions, waste effluent, ash, spent reagents, etc.).	The EGCS is a wet open loop type which uses sea water as the washing medium. After exiting the towers the wash water passes through a static mixer where it is diluted for compliance of pH requirements. The ship has installed filters in the garbage room which they are calling "in port" filters. These filters will filter out ash particulates and other waste from the wash water.
1.8 Completed by:	Wesley Whittier (wesley.whittier)
1.9 What scrubber process parameters are monitored (flow capacities, pH, other)?	- Intake and the Effluent pH, - Intake and the Effluent PAH, - SO2, CO2 which is monitored via Gas Analyzer at the Funnel, - Turbidity FNU, - Intake Temperature at DeSOx Tower, - Effluent Temperature at Static Mixer outlet, - Flow Rate measured using Intake Transmitters from Sea Chest to the SW Pumps and Dilution Pumps, - Load on SW Pumps and Dilution Pumps for overall System Load - SW Pressure, - Exhaust Gas Pressure
1.9 Completed by:	Philip Parent (philip.parent)
1.10 For seawater intake/effluent, please provide port locations (PS/STB Frame number, etc.). Additional notes can include distance below waterline and angles.	SW Intake on Stbd side Frames 100 - 104 SW Effluent Overboard Discharge on Stbd side Frames 84 - 98
1.10 Completed by:	Philip Parent (philip.parent)

2: Ballast Water

2.1 Check the previous Additional Observation Reports (section 1.1) list of tanks used for Ballast Water storage. Including volumes and locations. List any changes.	Ballast tanks from forward to aft: FP - 514m3 (Ballast) 1C - 364m3 (Permeate) 13p - 190m3 (Permeate) 13S - 190m3 (Permeate)

	2P - 133 m3 (Permeate) 3P - 180m3 (Bio Waste) 3S - 180m3 (Gray Water) 4S - 180m3 (Permeate) 5S - 262m3 (EGB Wash Water) 16P - 174m3 (Permeate) 17S - 156 M3 (Permeate) 6P - 96 m3 (Permeate) 6S - 96 m3 (Permeate) 7C - 305m3 (Currently unavailable - awaiting coating) AP - 141m3 (Ballast) Heeling Tanks: 73P - 148m3 73S - 148m3
2.1 Completed by:	Philip Parent (philip.parent)
2.2 Are ballast water tanks used for wastewater storage?	Yes, reference the ballast tanks listed above with their designated usage.
2.2 Completed by:	Philip Parent (philip.parent)
2.3 Ballast Water system: brief description of the combined piping system if tanks used for both.	All ballast water tanks are connected through a common main piping system which runs fore and aft. All ballast tanks are connected to a single suction/discharge main via branch lines. It is possible to ballast either by means of pumps or gravity fill. Each tank has individual fill and suction pipes. No ballast water treatment system is installed on board.
2.3 Completed by:	Philip Parent (philip.parent)
2.4 Ballast Water treatment installation? If yes, describe operation/system specifics.	None
2.4 Completed by:	Philip Parent (philip.parent)
2.5 Ballast Water operations in AK waters (overboard intake/discharge, etc.)? Include the last date of ballast water discharges. Typically in the ballast water logs.	No ballasting or deballasting of ballast tanks performed in Alaska waters. All ballasting is done outside outside of Alaska waters greater than 12nm. Last Ballast Operation: Tank 5S 18 April, 2018 DeBallasting operation Initial Contents: 44m3 Final Contents: 0 Location Start: 32*15.5'N 125*50.8'E Location End: 32*27.4'N 126*23.4'E EST Volume: 44m3
2.5 Completed by:	Philip Parent (philip.parent)

3: Combustion Sources

3.1 Are there any changes from the previous Additional Observation projects (Section 2.1) on the propulsion system question on brief description of propulsion and power systems used on board (Diesel direct/reduction gears/PTO's DE, FP, CPP Azipod, etc.)?	No apparent changes. Diesel Engines driving alternators, same as last year. Two propulsion motors provide 130 RPM to shafts having variable pitch propellers.
3.1 Completed by:	Steven Chouinard (steven.chouinard)
3.2 Are there any changes from the previous Additional Observation projects (Section 1.1) on the list of the combustion equipment used for Power/Propulsion (make/model/output)?	No changes.
3.2 Completed by:	Steven Chouinard (steven.chouinard)
3.3 Are there any changes from the previous Additional Observation projects (section 3) on the incinerators make, model, fuel used, capacity?	No changes.
3.3 Completed by:	Steven Chouinard (steven.chouinard)

3.4 Average Hotel power (kW) in port and underway?	There was a deep discussion on this, C/E, EO, + Electrician. 5500 kw in port deviation about 1,000 kw less.
3.4 Completed by:	Steven Chouinard (steven.chouinard)
3.5 Average fuel consumption in port and underway?	Almost 16,000 per day. If you look at a per engine estimate it's approximately 1 m3 / hr. The ship has one DG on line in port usually. Underway & Maneuvering the ship would have 2 or 3 DG's in operation.
3.5 Completed by:	Steven Chouinard (steven.chouinard)

4: Food Waste Garbage Handling

4.1 How is food waste handled and disposed of?	The HVO has SOMAT machinery in garbage room. The food is first sorted, ground + rinsed down pulpers from galley locations. Food mulched to specifications enters piping system to SOMAT in the garbage room. SOMAT machine dewaters with a spinning auger instrument where solids are separately directed and water is extracted. The waste product is collected in plastic garbage can bins. Food waste stream has a mushy consistency. The organics may be discharged outside >12 nm. There's one garbage chute onboard on the stbd side of the garbage room. Locked down in AK, controlled access. Key is kept with the EO. Chute has a hydraulically operated internal valve and spray ports. Staff Chief overseen operations and cares for maintenance and repair management. There is however a composting project in VAN that the ship is a participating doner too. Certain food waste like fruit skins are stored and offloaded to a vendor in totes. The extracted water is collected in a GW storage tank and discharged outside 12nm.
4.1 Completed by:	Steven Chouinard (steven.chouinard)
4.2 Average food waste production per day (kgs/day)?	1.2 m3
4.2 Completed by:	Steven Chouinard (steven.chouinard)
4.3 Is the food waste de-watered? If yes, provide dewatering volumes and handling information.	SOMAT dewatering process directs galley GW to grease traps and holding tank. Estimated production is around 20m3 / day.
4.3 Completed by:	Steven Chouinard (steven.chouinard)
4.4 How are glass bottles, broken crockery, and ceramics handled?	Glass crusher is used to produce a condensed waste stream. It is stored and landed ashore in woven bags.
4.4 Completed by:	Steven Chouinard (steven.chouinard)
4.5 How is food waste monitored and/or recorded?	Monitoring system integrates within SOMAT controls. GRB / NAPA includes offloading data.
4.5 Completed by:	Steven Chouinard (steven.chouinard)

5: Sea Water Intakes

5.1 List all of the seawater intakes (chests); include the locations, frame, side (PS/SB) or compartment.	Seachest location, linear numbering system (1 is aft.) Fr. 104-108 Fr. 196-200
5.1 Completed by:	Steven Chouinard (steven.chouinard)

5.2 List filtration systems for each intake. Describe how filter systems are maintained. What is the frequency of cleaning? Is this performed in Alaska?	Basket strainer, typical crossover between P/S so periodical cleaning can be expedited. The EGCS strainer is cleaned daily.
5.2 Completed by:	Steven Chouinard (steven.chouinard)
5.3 How is debris and mud from filtration/strainers handled?	Collected, containment in drums until offloaded in VAN.
5.3 Completed by:	Steven Chouinard (steven.chouinard)
5.4 Marine Growth Protection Systems in the sea intakes. Description of the control systems and information on checmicals if used.	Cathelco System, impressed current in probes.
5.4 Completed by:	Steven Chouinard (steven.chouinard)
5.5 Hull cleaning in place in Alaska 2018?	Hull cleaning was done in dry dock Dec. 2017. Propeller polishing is expected in AK.
5.5 Completed by:	Steven Chouinard (steven.chouinard)

6: General

6.1 Is vessel crew cooperative on this project?	Yes
6.1 Completed by:	Steven Chouinard (steven.chouinard)
6.2 Do you feel the vessel has a clear understanding of compliance requirements?	Yes
6.2 Completed by:	Steven Chouinard (steven.chouinard)
6.3 Are there other remarks/ comments the OR wants to share?	As reported, No chlorine or other chemicals used for antifouling. The paint might have elements of copper. Two paints are listed on the "Record of Antifouling Systems." 1. Hempel's Antifouling Olympic +72950 (flat bottom.) 2. Hempel's Antifouling Globic 6000 (bulbous bow underwater.) Active ingredients: copper oxide cas no. 1317-39-1 and zinc ethylene - 1.2 - bis - dithiocarbamate cas no. 12122-67-7. Date of application: 121214-122014. No sealer coat applied.
6.2 Completed by:	steven.chouinard

Z: Signature & Submit

Ocean Rangers contributing to this report:	Richard Ekstrom (richard.ekstrom) Steven Chouinard (steven.chouinard) Philip Parent (philip.parent) Wesley Whittier (wesley.whittier)
Ocean Ranger Signature: