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:	Jun 7, 2018
Ocean Ranger starting report:	thomas.guiney
Ship Name:	Holland Zaandam
Ship Code:	HZA
Is this a revision of a previous report (Y/N)?	No

1: SOx Emissions Controls

1.1 Describe the SECA compliance plan.	Pursuant to requirements of EPA VGP 2.2.26, 40 CFR 110, and section 10 for Exhaust Gas Cleaning (EGC) Systems under IMO (resolution MEPC. 184 (5a). Remote sensors and transmitters bring data to the EMSYS (dashboard) computer in the ECR. There's communication between EMSYS and the EcoSpray compliance computer. Information that the EO obtains weekly, includes ship positions, pH in and pH out, water analysis for turbidity. Weekly analytical reports are being sent to HAL HQ in electronic format.
1.1 Completed by:	Tom Guiney (thomas.guiney)
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.	The EGC systems are hard wired to start and stop with the combustion sources they serve. As such, DG 2, 3 and 5 has EGS and use HFO. If there is an alarm condition which is outside operating parameters, prompt rectification must transpire or else the Engine will be shutdown or switched over to operate on MGO. Low sulfur fuels, MGO, is used with DG 1 and 4 as well as both boilers and the one incinerator. The fuel switching procedure of switching from HFO to MGO, begins with Bridge notification and all DG operating at no more than 50% load. Ensure quick closing valve to fuel modules on MGO service tank is open. Change over viscochief on one fuel module to AUTO MDO ensuring that the automatic three way valve is changing positions and note time and fuel counter when completely changed over. 45 minutes after change over re-route return fuel module by opening return valve to MGO service tank. Once this system is stable on MGO, change over next

	module. Change over the viscochief on other fuel module to AUTO MDOensuring that the three way valve is changing position.. note time and fuel counter. 45 minutes after change over, re-route returns of fuel modules by opening return valve to HFO service tank. Check bleed valve on fuel filters to make sure there is clean gas oil at D/Gs and ca lol DWO notifying that the vessel DG's are operating on MGO. Log time and position in Engine Room log book. Close steam on steam tracing. When all DG's are running on MGO speed and number of DG's can be adjusted as required. Monitor for leaks on HP fuel pumps and keep a close eye on status of fuel filters on fuel modules and DG's. Override low viscosity on VDU screen for readiness of stand by engines.
1.2 Completed by:	Tom Guiney (thomas.guiney)
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.	No

1.a: SOx Emissions Controls

1.4 Which combustion sources are coupled with the EGCS system?	Watsila Italia SpA, DG 2, 3 and 5 are coupled with the EGCS. There was consideration given to adding DG 4 with EGCS in 2017/2018. However, this change did not take place.
1.4 Completed by:	Tom Guiney (thomas.guiney)
1.5 EGCS units make, number, model, locations, fuel limitations (sulfur %).	ECO Spray Technologies S.r.l., Albanian Scrivia-Alessandra, Italy. Type/model: ECO-DeSOx. Exhaust Gas Cleaning (EGC) System. The ECO DeSOx towers on decks 5,6 and 7. Exhaust lines from DG 2, 3 and 5, lead through their ER locations through to Deck 10 and upwards through the funnel. The most recent bunker receipt reviewed was of June 4, 2018; HFO-sulfur content of 1.68; DMA-.0004.
1.5 Completed by:	Tom Guiney (thomas.guiney)
1.6 Scrubber type (closed, reagent cycle, combination or hybrid open-loop effluent to seawater)?	Open Loop.
1.6 Completed by:	Tom Guiney (thomas.guiney)
1.7 System status (operational, commissioning, under construction)?	Operational.
1.7 Completed by:	Tom Guiney (thomas.guiney)
1.8 Provide a process description and waste flow/chemicals used (Gaseous emissions, waste effluent, ash, spent reagents, etc.).	Effluent is discharged overboard. Harbor filters are used for in port conditions. The dirty bag filters are disposed of as non-hazardous waste.
1.8 Completed by:	Tom Guiney (thomas.guiney)
1.9 What scrubber process parameters are monitored (flow capacities, pH, other)?	The following parameters are monitored: pH-Intake water rack sensors. (PAH's, turbidity and pH). pH-effluent water rack sensors. (PAH's, turbidity and pH).
1.9 Completed by:	Tom Guiney (thomas.guiney)
1.10 For seawater intake/effluent, please provide port locations (PS/STB Frame number, etc.). Additional notes can include distance below waterline and angles.	Effluent discharge port on the starboard side, frame 88, overboard port angled 90 degrees to the hull. The sea chest/intake for the scrubber system is located on the starboard side, between frames 100-104.

1.10 Completed by:	Tom Guiney (thomas.guiney)

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.	A review of a previous report indicates that there are no changes to the tanks used for ballast water.
2.1 Completed by:	Tom Guiney (thomas.guiney)
2.2 Are ballast water tanks used for wastewater storage?	Available information indicates that use of ballast tanks for any other purpose would be made on a case by case basis of an unusual or an emergency situation.
2.2 Completed by:	Tom Guiney (thomas.guiney)
2.3 Ballast Water system: brief description of the combined piping system if tanks used for both.	The ship has two main ballast pumps rated at 270 m3/hr that discharge into a main centerline pipe. This line connects to all the ballast tanks. There is a stop valve that can be used to allow for fill or discharge bow and stern tanks independently. However, as previously mentioned, using ballast tanks for other than their specified purpose would be very unusual.
2.3 Completed by:	Tom Guiney (thomas.guiney)
2.4 Ballast Water treatment installation? If yes, describe operation/system specifics.	No. A previous report has indicated that a UV System was to be installed. However, as of this date, no such treatment system has been installed aboard this vessel.
2.4 Completed by:	Tom Guiney (thomas.guiney)
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.	It has been noted by the Environmental Officer that there have been no ballast operations in Alaska waters in 2018.
2.5 Completed by:	Tom Guiney (thomas.guiney)

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.)?	There are no reported changes to previously reported information.
3.1 Completed by:	Tom Guiney (thomas.guiney)
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)?	A review of previously submitted documentation and interview with the Staff Chief Engineer notes no changes in combustion equipment used for Power/Propulsion. There are (5) Watsila Diesel Generators/model: 12ZAV4OS; output 12,200 HP each.
3.2 Completed by:	Tom Guiney (thomas.guiney)
3.3 Are there any changes from the previous Additional Observation projects (section 3) on the incinerators make, model, fuel used, capacity?	As noted in previous reports and information provided by the Environmental Officer and Staff Chief Engineer, there has been no change in the status of the onboard incinerator; Norse Inova AS; burning MGO.
3.3 Completed by:	Tom Guiney (thomas.guiney)
3.4 Average Hotel power (kW) in port and underway?	6,000 kW when in port and underway.
3.4 Completed by:	Tom Guiney (thomas.guiney)
3.5 Average fuel consumption in port and underway?	Depending on operating conditions, underway fuel consumption could be in the range of 14,600 gal/day. Fuel consumption in port is approximately 2,464 gal/day. This of course will vary depending on such

	variables as type of fuel used, time in port and which combustion sources are in operation.
3.5 Completed by:	Tom Guiney (thomas.guiney)

4: Food Waste Garbage Handling

4.1 How is food waste handled and disposed of?	The majority of the food waste/solids are removed prior to dishes being placed in the dishwasher by crew. The food waste/solids from dishwashers are collected inside strainers located at the dishwasher outlet. The food waste is then transferred to small plastic trash cans and stored in the cold storage room to be offloaded outside of Alaska or discharged overboard once outside 12nm by overboard trash chute which is located in the garbage room. The vessel also has a SOMAT system that food waste from the Main Galley is fed into. Solid waste is shredded/compressed and dewatered. The solids are collected and either offloaded outside of Alaska or discharged overboard via the chute when outside of 12nm. The Environmental Officer is in charge of the discharge of food waste when done outside of 12nm. He is the only person who has access to the key for the padlock on the chute. He communicates with both the Bridge and the ECR with all communication and information relative to vessel location, etc., recorded in the NAPA electronic recording system.
4.1 Completed by:	Tom Guiney (thomas.guiney)
4.2 Average food waste production per day (kgs/day)?	1,970 kgs/day.
4.2 Completed by:	Tom Guiney (thomas.guiney)
4.3 Is the food waste de-watered? If yes, provide dewatering volumes and handling information.	The food waste is de-watered from the SOMAT System. The water extracted, is diverted to tank 14P. This tank has a holding capacity of 72m3. This water is then released to the GW system.
4.3 Completed by:	Tom Guiney (thomas.guiney)
4.4 How are glass bottles, broken crockery, and ceramics handled?	Glass bottles, broken crockery and ceramics are brought to the garbage handling area. The Company implements their recycling program. The various materials are separated and handled according to vessel' policies and procedures. For example, glass bottles are crushed to accommodate and maximize space in the collection bag. The recycles are then offloaded in accordance with Company guidelines, policies and procedures.
4.4 Completed by:	Tom Guiney (thomas.guiney)
4.5 How is food waste monitored and/or recorded?	Food waste is collected in tubs and weighed, collected and stored in the cold storage room pending disposition. Food waste disposition is recorded in the NAPA electronic recording system by the Staff Chief Engineer.
4.5 Completed by:	Tom Guiney (thomas.guiney)

5: Sea Water Intakes

5.1 List all of the seawater intakes (chests); include the locations, frame, side (PS/SB) or compartment.	Sea Chests: Forward, port and starboard, frames (198-200). Sea Chests: Aft, port and starboard, frames

	(104-106). Sea Chest: Scrubber, starboard, frames (100-104).
5.1 Completed by:	Tom Guiney (thomas.guiney)
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?	There is a strainer at each sea chest intake forward and aft. There are two strainers at the intake sea chest for the scrubber system. The cleaning of the forward and aft sea intake chest strainers is performed in accordance with the AMOS maintenance program; in this case, approximately every two months. The strainers associated with the sea intake chest of the scrubber system are cleaned every week to ten days. The specific time frames of cleaning is also dependent on the operating conditions. It would appear that while in Alaska, strainers will be cleaned.
5.2 Completed by:	Tom Guiney (thomas.guiney)
5.3 How is debris and mud from filtration/strainers handled?	The debris and mud is collected, packaged and offloaded outside of Alaska.
5.3 Completed by:	Tom Guiney (thomas.guiney)
5.4 Marine Growth Protection Systems in the sea intakes. Description of the control systems and information on checmicals if used.	A Cathelco anti-fouling System is used in the sea chests intakes and strainers.
5.4 Completed by:	Tom Guiney (thomas.guiney)
5.5 Hull cleaning in place in Alaska 2018?	The vessel was in dry dock in April, 2018. Similar to that performed when in dry dock in 2014. Cleaning as required. Hempasil XA315 paint on the bottom of the ship. HEMPAGUARD X7 89900 on the sides. Anti fouling Globic 81950 on sea chests, thruster tunnels and stabilizer pockets.
5.5 Completed by:	Tom Guiney (thomas.guiney)

6: General

6.1 Is vessel crew cooperative on this project?	The Environmental Officer and Staff Chief Engineer were very helpful in providing the necessary information for this project report.
6.1 Completed by:	Tom Guiney (thomas.guiney)
6.2 Do you feel the vessel has a clear understanding of compliance requirements?	Yes. In my opinion, the vessel has a clear understanding and commitment to adhere to compliance requirements.
6.2 Completed by:	Tom Guiney (thomas.guiney)
6.3 Are there other remarks/ comments the OR wants to share?	In my opinion, the Consolidated Additional Observation Report, has been well received by the vessel.
6.2 Completed by:	thomas.guiney

Z: Signature & Submit

Tom Guiney