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 8, 2018
Ocean Ranger starting report:	james.ham
Ship Name:	Holland Amsterdam
Ship Code:	HAM
Is this a revision of a previous report (Y/N)?	Yes

1: SOx Emissions Controls

1.1 Describe the SECA compliance plan.	Amendment set by IMO designating specific portion of North American to abide by strict emissions controls . There are tiers of NOx and fuel sulfur control to be completed by deadlines.
1.2 Completed by:	James Ham (james.ham)
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?	Diesel Engine 2,4,5
1.4 Completed by:	James Ham (james.ham)
1.5 EGCS units make, number, model, locations, fuel limitations (sulfur %).	System manufactured by: Ecospray Technologies S.r.l. Alzano Scrivia, Italy. Unit model: ECO-DeSOx. Project number: 14074-APC
1.5 Completed by:	James Ham (james.ham)
1.6 Scrubber type (closed, reagent cycle, combination or hybrid open-loop effluent to seawater)?	Vessel EGC system uses Wet open Loop Scrubber to remove the SOx and Particulate Matter (PM) from the exhaust emissions. The system mix system seawater with the exhaust gases which creates mildly acidic water; this water is then diluted using seawater which causes the acidic components to react with alkaline carbonates in the dilution seawater, neutralizes the water before it is discharged overboard.
1.6 Completed by:	James Ham (james.ham)
1.7 System status (operational, commissioning, under construction)?	Operational
1.7 Completed by:	James Ham (james.ham)

1.8 Provide a process description and waste flow/chemicals used (Gaseous emissions, waste effluent, ash, spent reagents, etc.).	System is open loop this type of system do not require chemicals.
1.8 Completed by:	James Ham (james.ham)
1.9 What scrubber process parameters are monitored (flow capacities, pH, other)?	Overboard PH , Turbidity ,PAH , So2 / Co2 Ratio
1.9 Completed by:	James Ham (james.ham)
1.10 For seawater intake/effluent, please provide port locations (PS/STB Frame number, etc.). Additional notes can include distance below waterline and angles.	1.10 inlet is sited between Frames 102-104
1.10 Completed by:	James Ham (james.ham)

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.	Fore peak- 514. 20 M3 WB 1 C - 363.6 M3 WB 13S - 189.9 M3 WB 13P- 189.9 M3 WB DB 17S- 155.8 M3 WB DB 2P-133.3 M3 WB 69C-18.2 M3 WB 18C-246.2 M3 WB 3S-179.7 M3 WB 3S-179.7 M3 WB 8-160.8 M3 WB 9C-218.5 M3 WB 10-225.9 M3 WB 16P-174.3 M3 WB 4S-180.0 M3 WB 11-265.7 M3 WB CO 70C-42.5 M3 WB 12-316.1 M3 WB 15P-130.6 M3 WB 5S-275.8 M3 WB 6P-102.8 M3 WB 6S-102.8 M3 WB 7C-320.3 M3 AFT Peak-175.3 M3 Total Ballast water capacity: 4965.5 cubic meters.
2.1 Completed by:	James Ham (james.ham)
2.2 Are ballast water tanks used for wastewater storage?	No.
2.2 Completed by:	James Ham (james.ham)
2.3 Ballast Water system: brief description of the combined piping system if tanks used for both.	The Ballast Water system enables the maintenance of vessel stability and provides the means to control heel/list and trim. All the Ballast tanks are connected to a single suction/discharge main via branch lines. It is possible to ballast either by means of the pumps or from the sea by gravity. Two overboard discharges are provided - one starboard and one port side - intercepted by remotely controlled valves in an emergency from the Wheel house and ECR. Emergency
2.3 Completed by:	James Ham (james.ham)
2.4 Ballast Water treatment installation? If yes, describe operation/system specifics.	No.
2.4 Completed by:	James Ham (james.ham)
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 operation of the ballast tanks are done inside AK waters, but

	are performed outside of 12 nm and underway.
2.5 Completed by:	James Ham (james.ham)

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.)?	According to my meeting with Staff Chief Engineer there is no changes from previous version.
3.1 Completed by:	James Ham (james.ham)
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)?	According to my meeting with Staff Chief Engineer there is no changes from previous version.
3.2 Completed by:	James Ham (james.ham)
3.3 Are there any changes from the previous Additional Observation projects (section 3) on the incinerators make, model, fuel used, capacity?	According to my meeting with Staff Chief Engineer there is no changes from previous version.
3.3 Completed by:	James Ham (james.ham)
3.4 Average Hotel power (kW) in port and underway?	Average Hotel Power while underway and while docked is about 4MW, and is dependent on the time of day /night and demand.
3.4 Completed by:	James Ham (james.ham)
3.5 Average fuel consumption in port and underway?	In Port 14 TPD . Underway 98 TBD
3.5 Completed by:	James Ham (james.ham)

4: Food Waste Garbage Handling

4.1 How is food waste handled and disposed of?	Pulped and discharged via below waterline chute. HAM does not have a bone crusher therefore lager bones waste kept in cold storage for offloading. Water is collected after the pump and drained into the de-watering tank directly below the silo, this in turn is pumped (by auto sensors) to the grey water collecting tank.
4.1 Completed by:	James Ham (james.ham)
4.2 Average food waste production per day (kgs/day)?	1.5m 3 (average amount based on food chutes for the last month) 0.29 m3 based on average amount landed over 26 days. Not measured.
4.2 Completed by:	James Ham (james.ham)
4.3 Is the food waste de-watered? If yes, provide dewatering volumes and handling information.	Not measured. . Large bone waste is separate at . Raw waste food (i.e pineapple husks etc) are cut up and the leftover food processed via SOMAT system. Kept in waste bins until able to chute O/B. Unprocessed food waste is stored in plastic bags inside plastic tubs. For off-loads in Canada the waste is stored in plastic lined totes which are off loaded.
4.3 Completed by:	James Ham (james.ham)
4.4 How are glass bottles, broken crockery, and ceramics handled?	These waste streams typically comes from containers such as bottles and food product containers. Glass , broken crockery, and ceramics containers are usually crushed to reduce their volume and landed ashore for recycling where that is available. For

	recycling, glass waste must be free of any contaminations of bottle caps, food, cigarette butt , ceramics etc. in some ports it may be possible to get a higher return by sorting glass by color. Crushed glass should be held on board until a port is reached where recycling service is available; if it cannot be held due to space consideration, it must be landed as solid waste. Glass waste may not be discharged at sea.
4.4 Completed by:	James Ham (james.ham)
4.5 How is food waste monitored and/or recorded?	The garbage room keeps a log of food waste and the environmental officer will log food waste offloaded or incinerated in the Garbage Record Book. Discharges are also recorded in NAPA which will provide latitude and longitude.
4.5 Completed by:	James Ham (james.ham)

5: Sea Water Intakes

5.1 List all of the seawater intakes (chests); include the locations, frame, side (PS/SB) or compartment.	Forward cross over- AC room frame - 198 - 200 Port & Starboard AFT cross over- forward Engine Room - frame 106 - 108 Port & Starboard EGCS inlet - AFT Engine Room- frame 102 - 104 Starboard.
5.1 Completed by:	James Ham (james.ham)
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 filter cleaned manually every two months.
5.2 Completed by:	James Ham (james.ham)
5.3 How is debris and mud from filtration/strainers handled?	Collected in drums disposed ashore in Victoria.
5.3 Completed by:	James Ham (james.ham)
5.4 Marine Growth Protection Systems in the sea intakes. Description of the control systems and information on checmicals if used.	CATHELCO system ; There are two types know as the Marine Growth (MG) Anodes and Trap Corrosion Anodes (TC) or (FE) being used depending on the material of the pipe work / condenser system. MG Anodes are manufactured from Cooper. They release ions during electrolysis which combine with these released from the sea water to form an environment which discourages spat and other minute organisms entering, and adhering in some area where they grow and start breeding . They are, instead, carried straight through to discharge and, provided that no untreated water is allowed to enter at some point subsequent to the Anodes, freedom from infestation is assured. TC Anodes are manufactured from aluminum for use in a system with predominantly steel pipes where the reaction of the aluminum anode with seawater results in the formation of aluminum hydroxide. This disperses down the pipe work positively charged, forming anti-corrosive barrier on the pipe work . FE (Cast Iron) Anodes are used when the pipe work is mainly copper nickel or aluminum brass. Hear, the reaction of the cast iron anode with the seawater releases ferrous sulphate into the water flow for corrosion protection .
5.4 Completed by:	James Ham (james.ham)

5.5 Hull cleaning in place in Alaska 2018?	Last done 2018 at dry dock may 1 through May 10.
5.5 Completed by:	James Ham (james.ham)

6: General

6.1 Is vessel crew cooperative on this project?	Could not have ask for a better crew . Staff Engineer was busy with day to day operation but still managed to make time to discuss special report needs.
6.1 Completed by:	James Ham (james.ham)
6.2 Do you feel the vessel has a clear understanding of compliance requirements?	Staff Chief seems to have a good understanding of compliance requirements
6.2 Completed by:	James Ham (james.ham)

Z: Signature & Submit

Ocean Rangers contributing to this report:	James Ham (james.ham)
Ocean Ranger Signature: