



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 20, 2018
Ocean Ranger starting report:	ronald.ladd
Ship Name:	Norwegian Bliss
Ship Code:	NBL
Is this a revision of a previous report (Y/N)?	No

1: SOx Emissions Controls

1.1 Describe the SECA compliance plan.	This section not completed per ADEC instructions; SOx (Scrubber) Report not done in the past, and will be done this 2018 season.
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?	This section not completed per ADEC instructions; SOx (Scrubber) Report not done in the past, and will be done this 2018
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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.	This section not completed per ADEC instructions; SOx (Scrubber) Report not done in the past, and will be done this 2018
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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.)?	This section not completed per ADEC instructions; SOx (Scrubber) Report not done in the past, and will be done this 2018
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4: Food Waste Garbage Handling

4.1 How is food waste handled and disposed of?	This section not completed per ADEC instructions; SOx (Scrubber) Report not done in the past, and will be done this 2018
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5: Sea Water Intakes

5.1 List all of the seawater intakes (chests); include the locations, frame, side (PS/SB) or compartment.	Two sea chest, Port/Stbd in Engine Room Compartment 11 Two sea chest, Port/Stbd in Engine Room Compartment 15 (Potable Water Production)
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Two sea chest, Port/Stbd in Engine Room
Compartment 17

Two sea chest, Port/Stbd in Engine Room
Compartment 18 (EGC systems).

Ronald Ladd (ronald.ladd)

5.1 Completed by:

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?

The sea water strainers have the standard metal strainers or "baskets", as they are often called, which are removed, cleaned, put back in the sea strainer housing and made ready for service again. The determining factor on when pulling a sea strainer basket is needed, or soon to be needed, is by the pressure differential gauge reading. The NBL is using Delta-P brand gauges, the 1st all plastic, corrosion resistant differential pressure gauges that, as with all differential pressure gauges, measures the differential pressure between the upstream port and downstream port to provide indication that a strainer basket change out or cleaning is needed.

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5.2 Completed by:

5.3 How is debris and mud from filtration/strainers handled?

The marine growth, if dry enough, is incinerated and the remainder is put in drums and landed ashore in VIC.

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5.3 Completed by:

5.4 Marine Growth Protection Systems in the sea intakes. Description of the control systems and information on chemicals if used.

There are four MGPS units installed onboard manufactured by Azienda Chimica Genovese and trade named "Ecolcell"

One Ecolcell unit is found in each compartment that sea chest are located, Compartments 11, 15, 17 and 18 for a total of four units.

Ecolcell operates by using an electrolytic cell containing titanium anodes to transform the salt of seawater into sodium hypochlorite (NaOCl) through a process of electrolysis. Electrolysis begins when the current is switched on at the control panel and the valves are opened. The resulting sodium hypochlorite is piped to the injection points where the disinfecting agent is injected into the seachests to mix with incoming seawater and prevents fouling in the whole seawater system.

Only a small concentration of this antifouling agent (sodium hypochlorite) is required to combat marine fouling, 0.1 to 0.3 ppm. At such low levels, the chlorine residual is said to be not harmful to the environment. These residual levels have been tested and they uphold International Environmental Standards. This antifouling agent is unique in that, and once the electrolysis (conversion from seawater to NaOCl) has taken place, the solution reverts to salt and water within 25 minutes.

The manufacturer of Ecocell states that sodium hypochlorite is acknowledged as being the best antifouling agent as it is effective against both macro and micro marine fouling, is eco-friendly, produced

directly from seawater and reverts to salt and water when the transformation process is complete (total time of approximately 25 minutes) and small concentrations guarantee that the corrosiveness of seawater does not increased (unlike copper anode systems), which means to say no galvanic corrosion potential is being created in the sea water distribution piping systems.

Ronald Ladd (ronald.ladd)

5.4 Completed by:

5.5 Hull cleaning in place in Alaska 2018?

There are no intentions to have any hull cleaning performed in Alaska this year.

5.5 Completed by:

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6: General

6.1 Is vessel crew cooperative on this project?

I didn't find it easy to receive more information on some of the finer details I was looking for. It was easier to go on line and learn about the manufactures systems of my interest as manuals, someones computer screen and prints seem closely guarded here and it wasn't worth ruining a working relationship to push for it. People are busy here, really busy and everything you want comes at the expense of someone else that's already very involved with something and I get that totally.

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6.1 Completed by:

6.2 Do you feel the vessel has a clear understanding of compliance requirements?

The only compliance I can think of that is applicable here would be that they understand the proper disposal of the removed sea strainer debris and accumulated marine growth.

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6.2 Completed by:

6.3 Are there other remarks/ comments the OR wants to share?

It would have been good to have more information on just exactly what systems were being serviced from the specific sea chest located in the four compartments besides identifying the sea chest that serviced the RO's and FW maker and the seas chest that was dedicated to the EGC systems and this on verbal answers. Of course, the DG's and air conditioning systems are associated with the others but a piping diagram would have been interesting to see but prints and written tech manuals are guarded here and I wasn't pushing for anything as it was not worth what that may have cost the "working relationship" so needed to find success at any level on the ships we sail on.

ronald.ladd

6.2 Completed by:

Z: Signature & Submit

Ocean Rangers contributing to this report:

Ronald Ladd (ronald.ladd)

Norwegian Bliss Consolidated Additional
Observations
Ocean Ranger Signature:

2018-06-22

Reference # - CAO-20180622-
1881278200

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