

“M/S Norwegian Sky”
Nassau Bahamas
May 22, 2011

To whom it may concern

Norwegian Cruise Line is one of the leading Cruise lines in the world, with 11 ships in operation all over the world, like in Caribbean, Mediterranean, Baltic, Alaska and Hawaii. All ships with different operating condition.

Maintenance is of the greatest importance, in order to achieve stabile, safe and reliable operation of our vessels.

As we have 7 ships fitted out with ABB Azipod propulsion systems, where cleanliness of the oil systems for both thrust bearings and propeller bearings are most important. The 7 ships have all installed the Purifier units in order to keep the oil systems free of contaminants like particles and water. Water is normally caused by condensation when ships are operating in cold waters like in Alaska. So far we have achieved very good results.

On the Norwegian Sky, we have installed Purifiner units from the company **Waagene A.S.** on both SB and PS stern tube systems as we have faced a high content of water contamination. A single unit on the SB system and a Twin unit on the PS, and the water content are reduced to a minimum.

I have to mention that we have 4400 liter on each stern tube. We find it impressive that such a small unit is able to reduce the water content as we have experienced on the Norwegian Sky.

We have also one unit connected to aft stern thruster as we have seen too high content of Fe, due to wear and tear. Within a week in operation the Fe content was reduced to an acceptable limit.

Single unit.

Twin unit



We are following up the oil quality of all our oil systems by sending samples to shore side laboratory on a monthly basis.

Feed back from this oil samples shows that the Purifiner units are performing to our satisfaction.

I would also like to mention that the units are easy to transport from one system to another. Small in size, light weight make it very easy to handle.

Einar O. Engmann

Chief Engineer
Norwegian Sky