

Background:

Silver Shadow is a “small” large vessel that is managed by V- ships Europe. The Silver Shadow is not geared to handle “mass volumes passengers”; but provides “high end” Alaska cruises. The Silver Shadow is a regular visitor, historically every other year the Silver Shadow visited Alaska. In 2008 the vessel visited Alaska, and the vessel visited Alaska in 2009.

This review includes the review of the Silver Shadow Annual Report 2009, January 14, 2010.

The items are set out below.

Discussion:

Silver Shadow’s management visited the CPVEC team early in 2008, to obtain information regarding the General Permit and associated plans, and to get a feel for ADEC CPVEC expectations. Silver Shadow worked in 2008 and 2009 on the SRE plans and shared voluntary information with Ocean Rangers regarding the SRE progress. The Silver Shadow has a “unique” AWTS system, the vessel has installed an AWTS of the Marisan brand that is “custom made” / modified to meet the Alaska discharge requirements. In 2008 and 2009 and after the Alaska season the vessel kept working on source reductions and replaced aggressively piping that contributed to the metal loads. Also in 2009 ammonia was no concern; Cu and Ni; the only two metals of concern. The overall discharge quality of the Silver Shadow in 2009 season, compared to the other large vessels, is remarkable.

- The SRE is concise, easy readable, to the point, and it appears that Silver Shadow approaches the SRE actions seriously, and appears already working on items. Pro-active approach. Also in the 2009 updates;
- The SRE include two categories: 1) Source reduction and 2) Technology evaluation.
- 1 Influent Source Reduction Evaluation: The report contains the elements: a) use of chemicals;- at this point unable to pin point metals (samples) from the used chemicals. Update of the Ecolab and Hepburn chemical use is completed. The dishwasher soaps that contained Zn is replaced (Solid Power Dish wash / Balance Fusion). New chemicals are use and logistically completed for the delivery on board for 2010. b) Tank coatings / paints: Unable to relate Zn Ni metal loads to these products. All tanks are re-coated with Cu free coating (Sigmaquard, the blue color version appears to contain copper pigments) re-coated with Sigma guard CSF 85 (585) light azure colour. d) Source water evaluation:- Hach test kits for on board sampling of metals it appears the vessel used this tool (on board lab) and kept also working on the sampling outside the Alaskan season. Hammering water system pressure controller was considered as contributor of the metal load. Vessel is replacing ongoing basis the piping. e) Bunker regime AK :- For now vessel believes that not really this regime is needed, however monitoring will be used if this would feasible and helpful. Metal samples are made in 2009 to identify the most “metal loading” ports with respect to bunker water. The vessel is collecting specifications and is working on piping re-mod plans for dry docking in 2011.

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- The Hach metal sampling kit is NOT a regulatory approved sampling method to determine the metal concentrations. However, for the purpose of verification “ball park” check is this good and indicative method to see the presence of metals in effluents.
- Vessel worked with AWTS suppliers to identify process changes / improvements and possible add-on units. At this point no additional updates available.
- Vessel is working with other manufacturers to look for add on control technology.
- Vessel included up to date 2009 metal sampling results from the Hach tool. This included the key point of Cu and Ni at several locations (evap, RO system) to identify the sources. Evaps and the Hot water sources
- Vessel indicated at his point no valid conclusion can be made of the actions.

Ocean Ranger Observations:

Ocean Rangers share information with ADEC CPVEC staff that vessel actively was working on SRE. Crew also shared voluntary information.

Conclusion:

The Silver Shadow did an excellent job in identification of the potential problem areas and applied efforts, actions in the 2008, 2009 season to bring the metal loads down.

Paint were re-coated, problem piping and appentures identified and where possible replaced. Also the Hach tool to actively on the spot to identify “ball park” metal pollutants loads is a good way to identify sources. The chemicals logistics planning is completed and in 2010 new plans and logistics are in place to “reduce the metal content” of the AWTS process chemicals. Vessel did conducted their own sampling and research to see where the sources (potential) are “located.

Juneau, February 26, 2010