

Source Reduction Evaluation completeness review specifics:

Reference:

Holland America Line (HAL) Source Reduction Evaluation (SRE) document dated April 24, 2008; total of 3 (three) pages.

Please note that recommendations/comments from one part of the SRE can also apply to other sections.

Source Reduction Evaluation Overview [page 2 HAL SRE]

- Inflows could be “shore based” or “ship based”. For example, inflow to the AWTS system could be water used for washing purposes, or distilled water from the evaporator. The following characteristics should be discussed in detail: source of flows, volumes, their use, and quality. Another source could be pool/spa/pond water. Where do these flows go? Are they effecting the WW quality through “co-used” system, or are they separated? All questions that should be included. Shore based inflow could be bunker water, we have still no idea on what/where and the volumes bunkered, this should addressed as well. The bunker water in Ketchikan for example is openly blamed for “high metals” which may be true, but is there quality metal water sampling data available at the shore connection? Recommend intake sampling. Also include information if chlorine and/or other halogens are added to potable water onboard the vessel, and what impact this might have on the metal levels.
- Technology evaluation / implementation- a realistic BACT (Best Available Control Technology) should be applied. A BACT assessment should identify the technical options, economics, and benefits for the environment. It should not be presumed that technologies are not available or not readily available.

Influent Source Reduction Evaluation [page 2]

- Point 1) Also include disinfectants, chlorine, halogens, etc. in the identification list. This should be written as to not exclude any products. Also it would be nice if future or historical use is addressed. For example, if the vessel currently has a “rodent free certificate”, what if the certificate expires and is renewed, what products would be used other than what is on-board?
 - Point 2) DEC recommends at least two potable water intake sampling events be included in the evaluation. Water sampling at drinking water utility plants may be different than at the dock / intake. There may be corrosion or other issues in the city pipes or at the dock that would change the results of the analysis of water.
 - Point 3) Again characterization of these sources are needed, occurrence and operations. Cleaning water products, fertilizers, floor waxes, etc. All obvious matters should be considered, in combination with operation / handling practices. Strategies for implementation of actions to reduce metal effluent levels must be included.
 - Point 4) Substitution of materials coatings if this is a cause.
- Items that were missing from the influent evaluation:

- **Missing**) characterization of intake sources and produced sources in the locations, volumes and use on board.
- **Missing**) materials; are there materials used that are prone to corrosion / leaching in combination with medium. (e.g. stainless, soft copper, copper piping, galvanized piping etc);
- **Missing**) Intermittent operations, etc that would impact the wastewater systems. For example what are the additional systems volumes and flow used when sanitation action is done on a large scale?

Section 1 (to be completed by October 31st 08)

Phases of evaluation of potential sources:

1. Documentation should include all the sources that feed in the AWTS system. Also identification is needed for the regime used for pool, pond, spa and other water source handling.
 - a) Should also include: domestic cleaners, “industrial cleaners”, identification of each (e.g. hotel cleaners/ engine room, hotel maintenance cleaners etc);
 - b) Source water evaluation should separate “shore based” and “vessel based” (TSG, Airco, etc.)
 - c) Potential contributors, where to look for, or is this referring to the contributors which are “found” during the study?

Section 2 (to be completed by November 30th)

2. Evaluation should also include: parts like fittings, couplings, etc of the wastewater system, including all parts of the potable and technical water systems. This includes all drains and drain systems. Also we recommend including the vessel maintenance documentation that identifies corrosion, pipe replacement issues and material choices for certain parts of the vessel. In short we need documentation regarding the “life history” of the systems. For example: the replacement of systems, part of systems like fittings, backflow preventers etc.

Section 3 (to be completed by December 31st 2008)

3. This section should also include all findings, facts, and items that affect the effluent quality, like: piping material, how the AWTS system is operated, what effect mixing ratios of GW and BW have on effluent quality, what effect AWTS chemical use (including process chemicals) has on the process, the air /oxygen ratio to support the process, etc.

Addressed need if parts of volumes the influent are not treated partly treated or stored to improve the effluent quality.

Treatment Technology Evaluation (to be completed by October 31st 2008)

ADEC recommends changing the completion date, if technology has to be discussed we believe that the technology should be “in line” with the previous finding and “remedial efforts” to reduce these metals. Other wise there is a risk that the economical assessment and physical space requirements of the control technologies is “unrealistically estimated”. We propose to postpone this time line

date. To avoid any misunderstandings Holland America should distinguish the following areas:

- Work with AWTS vendors to improve technology to reduce to the extent feasible in the frame work of the AWTS system and separately identify the parameters for improvement outside the AWTS system.
- Work with AWTS vendors on optimalization of AWTS in combination with looking into the feasibility for add-on controls for the pollutant of concern.
- All technology evaluations can be given to ADEC in “bits and pieces” however, this should be identified and actions taken included (timeline) when the “missing” pieces are delivered. This is to accommodate parts that are not completed but are later completed.
- Verbiage to be included for next year / continuation or lessons learned to apply on sister ships that may come to Alaska in latter years.