

## White, Edward E (DEC)

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**From:** Morani, William (HAL) [WMorani@HollandAmerica.com]  
**Sent:** Monday, March 09, 2009 2:47 PM  
**To:** Faure, Albert (DEC)  
**Cc:** White, Edward E (DEC); Koch, Denise (DEC); Turvey, Jonathan (HAL)  
**Subject:** RE: ADEC reponse on clarification HAL response quest 22 23

**Importance:** High

Albert,

Per your questions below and your telephone conversation with Jon Turvey of my staff on March 9<sup>th</sup>, I am providing answers to those questions for which we sought clarification in our previous response to your questions on our Source Reduction Annual Report. As these clarifications are with respect to consecutive questions, I've copied those sections of the response table to provide context for the question.

<p>22. Page 21 of 52: Nickel is a component of austenitic steel, is for example on the Zaandam relatively more stainless steel plumbing / appendages? Are source in the system to pin-point to this element?</p>	<p>Based on our general knowledge of the fleet but without having done an extensive inventory of installed plumbing, we have no information that Zaandam employs stainless steel plumbing to significantly different extent than other vessels in the HAL fleet.</p> <p><b>The second question(s) is unclear. Please re-phrase the question for clarification.</b></p> <p><b>Amended after clarification from ADEC:</b> <i>HAL is unable to pinpoint any specific source to which nickel concentrations may be accountable at this time. Stainless steel is certainly used in numerous applications in on board plumbing systems, and Zaandam is equipped substantially the same as her sister vessels in both the S and R class. While Zaandam certainly stands out with respect to the nickel content of evaporated water, downstream as well as discharge concentrations are well within normal variation for the fleet. Therefore we are focused on treatment technologies as the means to address this issue.</i></p>
<p>23. Page 26/52: include an explanation of soft and hard water, also the use and preferences. What actions has HAL taken / evaluated when these findings were made?</p>	<p><b>The first question is unclear. Please re-phrase the question for clarification</b></p> <p><b>Amended after clarification from ADEC:</b> <i>The water hardness classification criteria used to categorize HAL vessel water hardness was provided on page 13 of 52 in the originally submitted SRER. This table was found on the internet at the following web address (also provided in the original SRER submittal):</i></p>

Fairfax County Water Authority,  
<http://www.fcwa.org/water/hardness.htm>

*It is generally understood that evaporated water will be low in minerals (hence 'soft'), and therefore the 'hardness' will be low for waters in which evaporated water is a major component. Hardness data generally is not available on board, as the measurement is performed in an analytical laboratory. HAL has not, and does not, manage its water differently with respect to its hardness characteristic.*

*We remind ADEC that at any given time, water reserves are comprised of a dynamic blend of bunkered, evaporated or condensed water. To try and manage water resources around the 'net hardness' resulting from such blends is beyond the capability of the existing human and technical resources available on board. As iterated elsewhere in this reply, HAL has concluded that end-of-pipe treatment is the most promising use of resources to address this issue at this time.*

With regard to the second question, HAL has not initiated any action on the basis of water hardness data. Hardening of water could have a negative impact on membrane clogging, laundry operations and guest satisfaction on board, and we are reluctant to alter current water provision systems.

Implicit in the question is the idea that this water quality characteristic warrants correction. We do not concur. The on-board systems for producing, delivering, treating and discharging water are in fact working quite well and as designed. It should be noted that the discharge concentrations of metals are very low. Only when considering the extremely low 2010 limits of the permit are we led to further investigation of reduction opportunities.

Therefore HAL has concluded a post-use treatment technology development is the more appropriate effort to meet those limits, given the limited source reduction opportunities identified in this influent analysis. The treatment technology option, if one is found to exist, is likely to be both more practical and economic, as opposed to re-engineering and/or replacing the water supply and distribution system on board our vessels.

I hope this provides you with the desired information, and would appreciate confirmation when your review of HAL's SRE is complete.

Sincerely,  
William "Bill" Morani Jr.  
Vice President Environmental Management Systems  
Holland America Line  
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**From:** Faure, Albert (DEC) [mailto:albert.faure@alaska.gov]  
**Sent:** Monday, March 09, 2009 1:07 PM  
**To:** Morani, William (HAL)  
**Cc:** White, Edward E (DEC); Koch, Denise (DEC)  
**Subject:** ADEC reponse on clarification HAL response quest 22 23

Dear William:

ADEC received on February 26, 2008 HAL's written response on the preliminary additional Questions 1 26 09.

Hal identified in their response two items which needed clarification. Please find below the clarification:

Item 22: {Second Question unclear} ADEC intended to specific identification (e.g. "pin pointing") of specific parts / elements of the plumbing systems, that may contain stainless steel or other types steel alloys that contain Ni. Like back flow preventers, stainless steel fittings / taps in plumbing systems etc.

Item 23:{Explanation of soft and hard water} Which criteria are used by the HAL to classify the portable water in "soft" or "hard" water categories? When the water characteristics are established in the context of "hard / or soft", is there for a preference dedicate a water flow to and specific use?. For example soft water used for laundry operation?

Please let me know if there are remaining questions. We would like to close HAL's SRE review, an timely response would be appreciated.

Kind Regards,

Albert Faure  
ADEC-CPVEC