

CPVEC

ADEC CPVEC preliminary request for supplemental information HAL SRE Report

Subject: SRE Report 1 14 2009 HAL

Contact: William Morani HAL

Reference: Information HAL SRE Annual Report 1 14 2009

Vessels: HAL Fleet

Prepared by: Albert Faure.

Date: January 23, 2009.

To: William Morani

Dear Mr. Morani:

With reference to your annual SRE Report sent to us on January 14, 2009 (SRER), please find the preliminary list with questions.

ADEC CPVEC is pleased to see the efforts HAL put in the SRE reporting and associated evaluation of the systems.

In case of questions, please contact me or Ed White.

Kind Regards,

Albert Faure
CPVEC Program Engineer

Attachment: *Preliminary Questions ADEC HAL SRE Report 1 14 09*

Preliminary Questions

General: This review includes the review of HAL SRE report submitted to ADEC CPVEC on 1 14 2009 (SRER).

ADEC used as reference document the approved SRE of August 18, 2008 (approved SRE) (on file ADEC CPVEC).

- Page 3/52 SRER: Table <Source Reduction Effort / Mitigation Strategy>. Please provide responses for each subject which actions HAL took in 2008 and intend to take in 2009 (e.g. items 1, 2, 3, and 4);
- Page 5/52 SRER: Table. Provide detailed clarification on the Westerdam “total average) and (normal operating conditions), what does the text between parenthesis mean?
- Page 6/52 SRER: Please provide clarification why in Figure 2 <WW Average ammonia by Ship> for the Westerdam are at such high values? Are the graphs in figure 2 based on 2008 sampling data? Provide on Ammonia graph in figure 2 the AWTS vessels installations. Is there a correlation of the AWTS operations, AWTS make model layout, that affect ammonia performance?
- Page 7/52 SRER: Performance Conclusions. Figure 2 related: The conclusions are based on solely 2008 data? Is HAL “in house sampling” (non regulatory sampling) results use in the “conclusion” / “findings”. Provide clarifications.
- Page 5/21 approved SRE: Figure 2 < Gray / Black water ratios for Alaska Discharge by vessel>. How is this information used by HAL in the SRER? How is the Gray Black waters ratios correlated per ship in the results in figure 2 (page 5/52). Provide in your response these ratios and correlation with the results.
- Page 8/52 SRER: Figure 3 include the HAL fleet water sourcing. From the figure it appears that the Ryndam Volendam “use” technical water. In text is listed that Vista Class vessels (Oosterdam and Westerdam) use technical water for “conveyance” purposes. Provided clarification.
- HAL’s SRER demonstrated that potable water intake may effect potentially the effluent quality. Especially for the Port’s where water will be bunkered with relatively high metals (e.g. Vancouver BC, Seattle WA, and Juneau AK). Provide in your response what HAL did to minimize water intake at these ports. Does HAL have a storage and bunker regime of the potable water (e.g. party separation / target consumption)?
- What actions did HAL taken in 2008 to reduce water intake that had relatively high numbers of metals? Are sample results related to action regarding water intake location available? What are HAL’s plans for 2009 season to minimize or to eliminate the impacts of bunkering potable water with relatively high metal numbers?
- Page 12/52: Provide detailed information of the sampling point / location of the samples taken from the Evaporators. Are there different Evaporator units on board? Are all these units sampled? Include in your response the description of

- the evaporator systems, including make model. Are there corrosion controls on Evaporators?
- What actions were taken in 2008 to reduce the high CU numbers in evaporator produced water? What actions are planned in 2009?
 - Page 12/52: The Zaandam has relatively high numbers of CU and Ni, what is the cause of this? Is there a corrosion issue? Are there Evap bundle / plate problems? Did HAL evaluate evaporator related equipment? (e.g. distillate pumps and other apertures).
 - Evaporator: Provide information if operation of the Evaporator may affect produced water quality levels with regard to the NI, Cu and Zn (e.g. operating mode fresh / brackish / saltwater intake / steam leakage etc.).
 - Page 13/52: provide location of the chlorination sampling point.
 - Figure 3 include the HAL's fleet sourcing. In this overview the Oosterdam appears to produce "home made" contingent of 78% of the consumed potable water, are there samples available from the evaporator water of the Oosterdam? If no sample available, please explain why no sample are taken, and when sample data becomes available.
 - Page 14/52: Please clarify why "recorded pH is slightly acidic". Also indicated that this does not indicate aggressive corrosive characteristic". Provide information on "corrosiveness of soft water". Is the pH of evaporator water dependant on the overboard water intake? (e.g. seawater, fresh water).
 - Page 15/52: "Most technical water applications do not drain to the gray or black water system, and thus has diminished impact on effluent results AWTs systems discharged in AK". Provided for each ship how on board the technical water stream are used, separated, treated and or processed. From earlier report part it was identified by HAL that technical water was used on board of some vessels as "conveyance water". Include also for each technical water stream the daily flow of each production, storage and daily consumption.
 - Page 16/52: Strategic Sourcing of bunkered water. Include your actions taken in 2008 season when the data of the evaluation became assessable for the HAL. What is the 2009 plan?
 - Page 17/52: HAL include correlation of metals with "older / and younger" piping systems. HAL to provide if these systems really can compare. Are there in the older or younger systems upgrades, replacements done that may influence the numbers? HAL to provide per vessel an overview, including the regular maintenance on the piping systems Are there vessels with corrosion problems issues? Are there corrosion systems used on board to protect the piping systems from corrosion?
 - Page 17/52: Potable water tanks are evaluated. Provide the results from the technical water storage tanks. Are there technical water storage tanks used? And if so are evaluation results available?
 - HAL provided description evaluation on the potable water piping / plumbing but appears not to include the drain piping (GW and BW). Provide information evaluation of these systems.

- Section 5: page 20/52: “The next highest concentration of copper are found in laundry waste water”. How is soaps detergent “interaction” with the metal levels? Provide information how these evaluated sources could be improved.
- 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?
- 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?
- Page 27/52: Copper levels from the laundry warrant further investigation. Provide information on when HAL intends to investigate this item. Include this in the timeline.
- Page 32/52: De-scaler in which vessels and vessel’ department used? What is the average use of the de-scaler per vessel system? Provide how and where these de-scaler pipe conditioners are used (e.g. feed piping, drain piping etc.). Can descaler “attack” “leach” metal / metal coated piping and appendages? Provide info regarding the de-scaler.
- Page 34/52: Steiner Leisure Product information is not yet provided. Provide your time line (deadline) for submittal of this important information.
- Page 36/52: HAL includes information of “extra” tank. Provide information of the size, location and other requirements for this “new” tank, and what impact would be.
- Page 36/52: Provide information, dimensions drawings (preliminary) Vendor based of the EDR units.
- Section 8 Next Steps: Page 38/52: “Product substitution Implementation” Provide expected status /time line of the implementation. Provide information on why limited opportunities exist.
- Page 38/52: Treatment technology and Pilot study
 - Item 1: Provide “progress” overview of Vendors contacted and the status to date;
 - Item 2: Which technology is HAL focused on? Provide current status to date.
 - Item 4: Provide feedback on ship engineering lead and status to date.
 - Item 7: Installation / Commissioning of pilot technology. Provide information regarding estimated delivery time of the selected equipment installation time on board.

The goal is that the Department has all the relevant SRE reporting information regarding on file for future reference.

We are looking forward to HAL’s response.