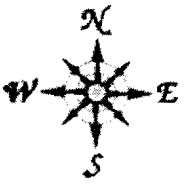

Responsible Cruising in Alaska

Senate Finance Committee

Juneau, Alaska 99801

February 7, 2013 **Testimony RE: SB 29/HB 80 Cruise Ship Discharges**

The preference of Responsible Cruising in Alaska is that cruise ships discharge only in federal waters, beyond the 3-mile state limit, where there are no direct salmon, whale or subsistence impacts in the coastal waters of Alaska.

Ship discharges in near-shore and coastal waters pose a distinct risk to wild salmon populations. Of all the potentially toxic constituents in cruise ship wastewater, dissolved copper is the one heavy metal that is uniquely harmful to wild salmon at all their stages of development and in tiny concentration levels, a few parts per billion.

Metal polishing technology available today for large marine vessels will remove over 50% of the copper generated onboard, and many ships achieve better removal levels, but HB 80 would exempt the entire fleet from high Alaska water quality standards.

A very few older ships, primarily the Princess fleet, are riddled throughout with copper piping and also have small wastewater holding issues, yet their seven ships usually discharge into the Juneau treatment plant. The remaining 23 ship Alaska fleet is clean, nearly clean, or willing and able to discharge both solids and wastewater in federal waters.

That is the shame and irony of SB 29 - Alaska and the cruise industry have made great strides in 6 years to address legitimate wastewater issues, yet SB 29 throws the fleet laws and regulations aside to exempt a few Princess 'copper ships.' These ships will soon be exchanged and re-deployed for newer ships with plastic flex-pipe, eliminating the dissolved copper found onboard their fleet today. SB 29 is unnecessary legislation.

Copper is generated solely by leaching copper pipes on cruise ships. One huge factor causing copper leaching is water softener, but that product is deemed important for cruise passenger showers and shampoos.

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Ships built 30+ years ago are copper-piped in over 1000 state-rooms, the galley, engine room, crew quarters, etc. These 'copper ships' have the highest copper counts in discharge waters, such as Princess Cruise Lines.

Conversely, all recently built cruise ships have plastic flex- pipes and generate the lowest copper counts from just water heaters and separators with copper piping, such as Royal Caribbean Cruise Lines.

SB 29 / HB 80 is unnecessary and puts at risk many salmon populations in state waters. Cruise ships are now legally permitted to discharge outside the 3 mile state limit, in federal waters, and Juneau has dock hookups for ships to discharge into the municipal water treatment plant. Princess Cruises uses the Juneau hookup daily during summer for their Alaska fleet of seven ships because, as noted, these ships are older, riddled with copper and have small wastewater holding tanks.

Responsible Cruising in Alaska wants cruise ships that must discharge in northern SE Alaska do so in the Juneau treatment plant and thus into one, municipal mixing zone that's been permitted by DEC without incident for 40 years. The alternative posed by HB 80 is that all of SE Alaska, Prince William Sound and Cook Inlet become cruise ship mixing zones, open for discharge whenever ships decide to do so.

SB 29 / HB 80 is looking for a problem that is already 95% solved. Wastewater discharge is available today in Juneau, and federal, offshore discharge for cruise waste solids is legal and permitted. I urge the committee to put aside this bill without making unnecessary exemptions to Alaska water quality standards for cruise ships.

Thank you for your thoughtful consideration,

Chip Thoma

Chip Thoma, President
Responsible Cruising in Alaska

BEFORE THE COMMISSIONER OF THE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
STATE OF ALASKA

IN THE MATTER OF:)
)
REQUEST FOR ADJUDICATORY)
HEARING ON LARGE)
COMMERCIAL PASSENGER)
VESSEL WASTEWATER)
DISCHARGE GENERAL PERMIT)
(PERMIT NO. 2007DB0002))

WATER DIVISION STAFF'S STATUS REPORT

I. Introduction

Pursuant to the Commissioner's July 25, 2008 order staying the adjudicatory hearing proceedings requested by the Alaska Cruise Association (ACA), staff provides the following report on the status of the cruise lines' efforts to resolve compliance issues with the final cruise ship general permit (GP) effluent limits (specifically long-term limits for ammonia, copper, nickel and zinc that ACA contests in its original adjudicatory request), and whether the stay of the proceedings should be continued or lifted. The current stay expires on June 1, 2009.

In conjunction with the filing of this status report, it is staff's recommendation to the Commissioner that, provided that the cruise industry efforts reflect continued concerted or individual efforts to find compliance solutions, the stay should remain in effect. Staff also suggests that it may be warranted and reasonable, based on the information provided in this report, to extend the stay longer than June 1, 2009, perhaps through December 31, 2009. This will allow the cruise lines and the agencies time to determine whether the

solutions that cruise lines have identified to date -- such as changes to chemical use, plumbing, and the results of pilot wastewater quality improvement projects -- can be implemented to achieve compliance with long-term effluent limits.

II. Staff's Assessment of Cruise Line Efforts to Date

The cruise ships operating under the GP all have advanced wastewater treatment systems onboard for treating blackwater and graywater before discharge, although these treatment systems often vary in design from cruise line to cruise line. These systems produce a high quality effluent. However, sampling data taken and reported by individual ships for the 2008 cruise ship season confirms that current onboard treatment systems are not consistently achieving compliance with either the interim or long-term effluent limits for ammonia, copper, nickel, and zinc.

During the 2008 cruise ship season, 20 of the 31 large cruise ships discharged in State waters. Cumulatively, these vessels took a total of 206 effluent samples to satisfy the terms of the wastewater discharge permit. Each sample was analyzed to determine the concentration of ammonia, copper, nickel and zinc. Out of 824 data points (206 samples with 4 parameters), there were 36 exceedances of interim permit limits noted on 11 vessels. That means approximately 4% (36/824 * 100 = 4.4%) of the data points exceeded the interim limits for ammonia, copper, or zinc. The most frequent exceedance was for ammonia (21 of the 36 exceedances).

Comparing the 2008 sample results to the stricter long term effluent limits, there would be 563 exceedances for those same parameters. That means approximately 68% (563/824*100 = 68.3%) of the data points would exceed the long term limits.

Under terms of the GP, those cruise lines that operate under the GP were required to submit another source reduction evaluation (SRE) report in January of 2009. In this annual SRE report, the cruise lines were to apprise DEC of the

efforts made at developing potential compliance solutions (including pinpointing existing or emerging technology solutions) and information learned since the cruise lines submitted their previous respective SRE reports during the summer of 2008.

The most recent reports submitted by the individual cruise lines to DEC reflect different levels of effort by each cruise line in identifying and implementing compliance solutions. Summarized below are staff assessments of the individual cruise line 2009 SRE reports.

- Carnival Cruise Lines – This cruise line met the long term effluent limits. However, its ship only discharged a limited quantity and selected streams of accommodation graywater through their wastewater treatment system. The ships held the majority of their wastewater for discharge outside of Alaska.
- *Silver Shadow V-ship* – The levels of ammonia and zinc in the vessel's wastewater effluent complied with the long term effluent limits. During 2008, the Silver Shadow fine-tuned its existing wastewater treatment system, made operational changes, and replaced some of its piping and valves. For the 2009 cruise season, Silver Shadow will segregate sources of wastewater with high levels of metals (e.g., laundry water and air conditioner condensate) into holding tanks for discharge outside of Alaska waters. We expect that these changes will reduce the concentration of copper and nickel in the vessel's effluent.
- *Norwegian Cruise Lines (NCL)* – NCL is replacing sections of the metal potable water piping on one of its ships. The replacement is being done primarily to address maintenance problems (i.e., bursting pipes), but this may also reduce the amount of metals in the ship's effluent. NCL is also working with the manufacturer (Scanship) of its current wastewater treatment system on one of NCL's vessels on a pilot project to further

reduce the levels of ammonia and metals. NCL and Scanship completed influent studies and fine-tuning to the vessel's existing system during the 2008 cruise ship season. They are in the process of making changes to their bioreactor. NCL will provide wastewater data to DEC on the optimized system in March 2009.

- *Seven Seas Mariner* – This vessel met the long term effluent limit for nickel. Its effluent had high levels of zinc in the beginning of the season. Consequently, the vessel operator replaced corroded metallic piping and valves. By July, the vessel's wastewater effluent met the long term limits for zinc, as well. The vessel operators worked with the manufacturer of its wastewater treatment system to significantly reduce the concentration of ammonia in their effluent, but still exceeded the long term effluent limits for that parameter. The vessel operators are assessing the plumbing (i.e., monitoring corrosion of piping), reducing the softness of their produced drinking water, and may make changes in the locations/ports where the vessel will bunker drinking water from, as well as changes to the ratio of bunkered to produced drinking water, in order to reduce the level of copper in the effluent for the 2009 season.
- *Celebrity/ Royal Caribbean Cruises Ltd (RCCL)* – None of the Celebrity and RCCL ships consistently[1] discharged in Alaska waters during the 2008 season. Many of the company's ships have replaced metal portions of their potable water piping with non-metallic piping. The company is installing a pilot project of a Navalis wastewater treatment system – a system that has not previously been installed on a cruise ship – on a RCCL ship in late February 2009. The company believes that the Navalis Poseidon system will likely meet the ammonia limits but is less confident that it will achieve

[1] The Celebrity *Millennium* only discharged in Alaska in order to participate in the dilution study in Skagway.

the 2010 standards for the metals. RCCL plans to provide wastewater effluent data from the Navalis system pilot project to DEC by May 2009.

- *Princess Cruises* – Six of the Princess ships consistently exceeded the long term effluent limits for ammonia and metals. The *Dawn Princess* met the long term nickel limits. Princess provided DEC with sample data on the level of metals found in bunkered water from West Coast ports. Princess indicated that its produced drinking water is very soft and may corrode pipes and leach metals in wastewater effluent. The cruise line identified CDC-approved water additives that it could use to reduce the corrosiveness of the produced drinking water. However, Princess did not provide any details regarding actions that they would take (e.g., avoid bunkering water from certain ports, increase ratio of produced drinking water, etc.), based upon the provided information in order to reduce the level of metals in its various vessels' effluent. Princess is working with the manufacturer of its wastewater treatment system to optimize the system in order to reduce the levels of ammonia in effluent. Princess will provide wastewater effluent data to DEC in March 2009 so that we may evaluate their progress.
- *Holland America Line (HAL)* – Five of the HAL ships consistently exceeded the long term effluent limits for ammonia and metals. One ship, the *Statendam*, met the long term copper limit for all but one sample.[2] HAL has concentrated its efforts on evaluating the chemicals used onboard and evaluating the levels of metals in drinking water. The chemicals onboard do not appear to be a significant source of either ammonia or metals. The sample data indicate that bunkered water contains elevated levels of metals. The drinking water produced by the vessels also contains significant amounts of metals. However, HAL has not yet indicated what actions that it will take based upon this information (e.g., avoid bunkering

[2] One sample on the *Statendam* had a copper level of 3.2 ug/L. The long term limit is 3.1 ug/L.

water in particular ports). HAL is currently assembling a technical committee that will review potential technologies and select a technology to conduct a pilot project, and will inform DEC of that selection in April 2009. However, it is unclear whether HAL will have a pilot project in place by the 2009 cruise ship season.

III. February 18, 2009 Wastewater Technology Report and Workshop

DEC is working with a contractor to produce an inventory and evaluation of existing and innovative new control technologies to further reduce and/or remove ammonia and metals from the treated wastewater effluent of large cruise ships. DEC and the contractor issued a draft of the study on February 16, 2009.

DEC held a wastewater technology workshop on February 18, 2009 with the cruise industry, wastewater treatment vendors, academics, and the public, to discuss and explore land-based or emerging pollutant reduction and removal technologies that might be adapted and installed as part of cruise ship wastewater treatment systems. While staff is still reviewing the information, it appears that some of the technology options are viable and worth pursuing. However, the cruise lines have indicated that adapting these technologies to the marine environment could take one to two years.

IV. Conclusion

Staff believes that there may be existing technology, developing technology, or other actions (including treatment process changes, source reductions, etc.) that can be potentially and reasonably applied to resolve the cruise ship compliance problems with the long term effluent limits set under the GP. However, staff also believes that it is equally reasonable to allow the cruise lines more time to explore and obtain the technology or other actions by extending the stay through December 31, 2009, as long as the cruise industry's efforts, progress reports, and answers to DEC inquiries reflect a genuine intent to pursue compliance solutions.

As stated at the outset of this report, the most recent information submitted by the individual cruise lines to DEC pursuant to the GP compliance schedule evidences different levels of efforts by the cruise lines in searching for compliance solutions, particularly with regards to the efforts to find technology solutions. Notably and commendably, the cruise lines with the fewest ships have taken the most aggressive action to comply with the long term limits. Nonetheless, because the industry as a whole, the wastewater discharges associated with the industry, and Alaska marine waters and related resources would benefit from continued research of technology and alternative potential solutions, staff remains interested in working with the cruise lines to consider and review ways to achieve compliance with long-term limits through the duration of any stay the Commissioner, in his discretion, believes warranted.

RESPECTFULLY submitted this 2nd day of March, 2009.

By: Lynn J. Tomich Kent
Lynn J. Tomich Kent
Water Division Director

CERTIFICATE OF SERVICE

I, Rosemary Ritter, state that I am an employee of the Alaska Department of Environmental Conservation, Division of Water. I HEREBY CERTIFY that on the 2nd day of March, 2009, I served a true and correct copy of the foregoing Division Status Report in the above-captioned appeal via United States Postal Service first-class postage-prepaid mail and via e-mail to the following parties:

- Eric Jenkins, Davis Wright Tremaine
- Richard Elliott, Davis Wright Tremaine
- John Binkley, Alaska Cruise Association

- David Wetzel, Admiralty Environmental
- Gershon Cohen
- Ruth Hamilton Heese, Senior AAG, DOLaw
- Terry Thurbon, Chief Administrative Law Judge, OAH

By: Rosemary Ritter
Rosemary Ritter