



**Department of Environmental Conservation (DEC)**

**Cruise Ship Wastewater Science Advisory Panel  
September 19 and 21, 2012  
Face to Face Meeting  
Meeting Summary**

***Panel members in attendance***

Mark Buggins*	Municipality of Sitka
Dr. Reinaldo Gonzalez	Burns and McDonnell
Kenneth Fisher	EPA
Juha Kiukas	Ecomarine
Lamberto Sazon	United States Coast Guard
Lincoln Loehr**	Stoel Rives LLP
Hermann-Josef Mammes*****	Meyer Werft
Steve Reifenstuhl***	Southeast Herring Conservation Alliance
Michelle Ridgway****	Oceanus Alaska Environmental Services
Dr. Silke Schiewer	University of Alaska Environmental Engineering

- \* Mark Buggins fills the legislatively mandated coastal community Panel seat.
- \*\* Lincoln Loehr fills the legislatively mandated cruise ship industry Panel seat.
- \*\*\* Steve Reifenstuhl fills the legislatively mandated commercial fishing industry Panel seat.
- \*\*\*\* Michelle Ridgway fills the legislatively mandated NGO Panel seat.
- \*\*\*\*\* Hermann-Josef Mammes is substitute for Thomas Weigend

**ADEC**

Rob Edwardson  
Melissa Goldstein  
Andrew Sayers-Fay  
Michelle Bonnet  
Lynn Kent

**ERM**

Krista Webb  
Mary Parke

**Visiting Public (one or both days)**

Chip Thoma	Responsible Cruising in Alaska
Angel Kwok	USCG
Mike Tibbles	ACA
Tim Burns	DLL
Erick Neuman	Rochem
Dave Wetzel	Admiralty Environmental
Peggy Ann McConnochie	Cycle Alaska
Bob Janes	Gastineau Guiding
Asgeik Wien	Scanship
Wei Chen	Wartsila Water Systems

Hannah McCarty  
Russell Stigall  
Mary Jane Lynch

Representative Beth Kertula  
Juneau Empire  
ADEC

### **Meeting Outcomes**

- The Panel evaluated each section of the report for completeness, accuracy, and consensus. Revisions were documented at the meeting primarily by editing the report on screen during the meeting.
- The Panel confirmed findings in the Final Draft Preliminary Report.
- The Panel listened to Public Comments from meeting and from the Technology Workshop.
- Panel identified further work needed and path forward.

### **Meeting Summary**

#### ***September 19, 2012***

10:00 a.m. The Panel convened in Goldbelt Conference Room.

10:00 a.m. – The Panel reviewed the Draft Preliminary Report  
11:45 a.m.

Krista Webb provided a quick summary of the Panel Mandate and report outline. The Panel broke up into small groups (Michelle, Steve, and Reinaldo facilitated by Mary Parke) (Juha, Hermann, and Bert facilitated by Krista), and (Lincoln, Silke, Mark, and Ken facilitated by Melissa) to review the Draft Preliminary Report.

The Panel was asked to answer the following questions for each section:

1. Is the section complete?
  - If no, what is the missing information?
  - If yes, are there any caveats to understand conclusions? Have we adequately presented them in report?
2. Are there conflicting opinions among Panelists?
  - What are they?
  - Can conflict be resolved? How?
3. Overall, is there further work for the SAP to do on the section?

The discussion process is outlined below:

1. Each section discussed within table work groups (all tables reviewed all sections)
2. Work groups provide the initial response to the questions
3. Discussion opened to all Panel members
4. Repeat with the next section

The sole intent of the meeting was to have the Panel do a final group edit to the latest version of the report. The Panel went through the report section by section. For each section, a time limit for review was set. Each small group discussed their comments. Each group reported their suggested revisions to the full panel and an open full panel discussion ensued. Krista Webb facilitated the discussion and report revisions were shown on overhead screen. The Panel was able to see and edit the report together. Comments, text revisions, and remaining issues or further work to be done was recorded as edits and comments on-screen by Andrew Sayers-Fay

in a Word document<sup>1</sup>. The meeting was not recorded. Notes were taken informally to help Krista Webb edit the submitted revision of the Preliminary Report, but a formal transcript of the meeting was not created. The best record of the meeting work was intended to be the Word document.

*Section 1 Introduction* – The Panel discussed and agreed on specific language suggestions. Section 1 was determined to be complete.

*Section 2 Background* – The Panel discussed and agreed on numerous suggestions for language revision and moving the statement regarding trained wastewater treatment engineers to the Findings section. At the request of the Panel, DEC agreed to provide information for the report on how water quality criteria are developed.

*Section 3 Sources of Constituents* – Errors regarding the source of ammonia were corrected. Several paragraphs were moved to different sections of the report. The discussion on range of contaminant concentrations in bunker water was revised and added back to the report.

*Section 4 Current Methods* – Section 4.1 was moved to Section 5.1. Section 4.2 was moved to Section 5.2. Several portions of Section 4.3 discussing Reverse Osmosis and Ion Exchange were moved to Section 5. Section 4.4 was moved back to Section 3. The Panel agreed with editorial revisions and adding the caveats to the section conclusions. These caveats were captured in report text.

Public comments were provided by:

- Peggy Ann McConnochie of Cycle Alaska
- Bob Janes of Gastineau Guiding

11:55 A.M. Panel broke for lunch and reconvened at 1:00 P.M.

*Section 4 Current Methods* – The Panel discussed the issue that there is not a clear break in the report between current practices and those proposed for the future. These issues are not clear, and evidence that specific practices are done is not available. There is overlap between what is done presently and what may be a plan for future. There was discussion that retrofits are not done specifically to reduce copper, but to improve the performance of the AWTS for BOD and TSS removal. Panel agreed that there are no current control methods used to reduce the discharge of excess ammonia or metals and that most of the language regarding control methods should be moved to Section 5.2.

The Panel discussed Table 12 at great length and agreed that comparing the influent and effluent percentages was comparing apples to oranges (different data sets) and that the percent removal should be taken out of table. Panel also discussed the importance of percent removal vs. how well systems are meeting the standards. Is it worth spending a million dollars to remove five percent vs. what does the five percent removal do to improve the environment?

Panel discussed Section 4.4 and the issue that the report must make it clear that the effluent quality is extremely dependent on the mixture of black and graywater being treated. Another important issue is that Table 12 reports averages. If average is on cusp of meeting permit limit, it means that WQS are exceeded on individual basis and this is not meeting permit limits. Panel agreed to revert to an earlier version of the Table (exceedance of water quality and permit

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<sup>1</sup> DRAFT Preliminary Report September 2012 V2 10012 Sections 1-6.doc document

levels) and only show the four contaminants of concern. The table illustrated that the AWTs remove a significant portion of metals from the influent.

*Section 5 Additional Methods* – Section 5.2.1 regarding treat and discharge selected waste streams was moved to Section 7. There was discussion that the present permit limit differences between underway and stationary discharge reflect the differences in dilution. The current option of hold and discharge offshore is done to meet discharge standards for conventional pollutants. The Panel agreed to split the paragraph and clarify the difference between underway and stationary discharge. Team agreed to have DEC edit the information on 301(h) waivers and permitted shore side wastewater treatment facilities.

- Eric Neuman of Rochem gave a public statement and noted that there were inaccuracies in the Sections about reverse osmosis and those needed to be addressed. Krista Webb agreed that the Panel was aware of this issue and the Section would be corrected for the report.

Section 5.3 Panel corrected numerous inaccuracies in this Section. One Panelist agreed to provide additional data regarding shoreline applications for metal removal and re-inclusion of a previous table showing these examples. Panel discussed that the treatment options in this section are very conceptual (particularly the combinations in 5.3.4). Section 5.4 (Application to Marine Uses) was changed to “Additional Treatment Methods Evaluation” and Panel requested that it be evaluated for redundancy in other parts of the report. Section not complete and Panel to review after Krista made suggested revisions and added discussions of RO, ion exchange and how they are used<sup>2</sup>.

*Section 6.0 Identification of Best Available Technology (BAT)* – Krista pointed out that the BAT spreadsheets conceptualized originally did not show substantial information as a result of going through the process. Members of the Panel felt that despite the lack of quantitative data, there could be qualitative ratings and these should be noted in the report as worth evaluating further, specifically ion exchange (IX) and reverse osmosis (RO). Serious options are IX, nitration, RO and a combination of those things can likely improve effluent results, but not verified if can meet WQS. The report can only discuss likelihood, not provide numeric calculations. Information regarding Disney Wonder was deleted as it was not a ship-wide piping replacement.

Retitle to Application of BAT Framework

*Section 7 Environmental Benefit* – A Panel member noted that the Panel mandate was to evaluate the criteria as written in the regulations [meet WQS at the point of discharge] and that discussion of a dilution model was not appropriate in the report. The Panel member challenged the accuracy of the model used and questioned use of these models in the Panel report. The majority of the Panel agreed to include the dilution discussions, as they are part of the Panel’s task to look at “the environmental benefit and cost of implementing additional methods.” The Panel member requested that there be an additional similar section added describing the undiluted scenario comparing the concentrations of undiluted effluent to Water Quality Standards (WQS). The Panel discussed that there is a duration component to the WQS (chronic and acute standards have different durations). This discussion was left to resume on Friday.

Meeting adjourned at 6:00 p.m.

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<sup>2</sup> Panel reviewed report after meeting changes were made and submitted additional edits.

## **September 21, 2012**

8:00 a.m. The Panel convened in Goldbelt Conference Room.

The Panel continued reviewing Sections 7-9. Panel revisions and comments were captured in a Word document onscreen. At mid-morning, the Panel was given letters of appreciation from the DEC Commissioner for their work.

*Section 7 Environmental Benefits (continued)* – Two Panel members noted they had comments to submit electronically. One of these Panel members made specific recommendations about structure of beginning of Section 7 and proposed additional discussion of effects at the point of discharge and offered to provide text for this section.

DEC pointed out that the report could benefit from a discussion of how WQS are set and offered for DEC to provide this text for the report. Panel agreed.

A Panel member not present at this portion of the meeting and promised written comments and revisions.

The Panel discussed and agreed to add a table to the report that showed chronic and acute WQS, 2008 and 2009 maximums and 2011 averages. In addition, acute WQS values and averages for 2011 were added to Table 20.

A Panel member read two composed paragraphs for insertion in report and promised citations for this text. The panel agreed to include the two paragraphs upon confirming that the citations supported the paragraph subject matter. The proposing panel member agreed to submit the citations to the panel.

Panel moved Section 7.2.2 to start of Section 7.3.

There was lengthy discussion regarding the effects of effluent on marine organisms; the duration component of WQS; the accuracy of the dilution models used; and the applicability of the results of the EPA dye study. A Panel member stated that the report was missing discussion of ocean stratification and description of effects of contaminants on marine organisms. The Panel member requested the opportunity to further comment and provide input on Section 7 and that that an analogous section be added prior to Section 7.3 that addresses the effects of undiluted discharge along with discussion of bioaccumulative effects and effects of repeated discharges to same location. Two other Panel members disagreed that undiluted effluent is a real scenario.

Panel suggested acute criteria be added to all tables in this section. Panel suggested maximum values be added for accuracy.

Panel agreed that Section 7.4 be reviewed to remove the word “if” and that the section note that untreated effluent can be released outside of regulatory boundaries.

Section 7.5 The Panel debated the inclusion of the conclusion about effects of undiluted discharge exceeding acute WQS. Some Panelists strongly felt that this is not an accurate scenario. One Panelist insisted that the simple statement that the effluent levels were above the acute criteria was important to include in report while another pointed out that they are not toxic levels without consideration of the duration in the criteria.

*Section 8 Economic Feasibility* – The Panel agreed that tables and data included in the report needed to be significantly qualified because data came from answers to questionnaires. There is no consistency in the numbers between cruise operators and it would be inaccurate to

compare them. Panel agreed to remove the life-cycle costs evaluation and report that the data survey did not provide adequate data to do this evaluation.

*Section 9 Preliminary Findings* – The Panel debated and wordsmithed the findings at great length trying to reach a consensus. Each text edit agreed to was captured and revised in real time in the report on screen. The Panel was specifically stalled in this section by several conflicts regarding whether specific assertions were “findings” of the Panel. Ultimately, there was a fundamental split between one Panelist asserting that there is a significant and real environmental benefit from net reduction of ammonia and metals entering the environment and the rest of the panel that the load is not significant and that dilution occurs immediately and there is no environmental benefit to meeting WQS at point of discharge. Ultimately a consensus was reached by moving several bullets out of the findings to Section 7 and recommending continued sampling and monitoring of cruise ship effluent and using the word “little” instead of “no” environmental benefit to be gained by meeting WQS at point of discharge.

In the middle of the Findings discussion, the Panel and DEC discussed what happened next with the report. Krista was to incorporate all of the captured and written revisions to the report and redistribute the draft to the Panel. The Panel would make their final edits and submit the report to DEC.

DEC went over the next steps to take place. The Panel was mandated to advise the Commissioner. The panel chose to do this via their meetings and by providing a Preliminary Report. DEC then will provide a report to the Legislature by January 1, 2013. The DEC Report will be a cover report to the Panel report; the Panel report will not be changed by DEC. The legislature will take the DEC report and decide what to do in response to the information provided. They may want a final report from the Panel, or take action in the law.

The Panel asked if there was more work for them to do. DEC responded that presently the law as written requires that cruise ships meet water quality standards at the point of discharge. A permit DEC writes has to require that if an operator cannot meet all WQS at the point of discharge they must show that they are using technology that is the most effective and economically feasible. DEC is currently working on the new permit. If WQS cannot be met by existing technologies, the way the law is written, there may still be work to be done by the Panel. The idea was that the legislature may ask the Panel to continue to look to see if there are ways to improve the effluent quality. There might not be technology today that will get us there over the next two years. The level of effort on the part of the Panel will not be as intense as it was in the last few years and that is assuming there are no changes in the law.

A Panel member stated that the Panel was lacking in studies and critical information (such as direct influent to effluent concentration comparisons) and that more research is needed. DEC suggested a section in the report on recommendations. DEC clarified that the Panel would not do these studies. If needed and funded, they would be contracted by DEC. Other members of the Panel felt that requesting more research diluted the findings. DEC suggested that the Panel may want to regroup after the Legislature responded to the Preliminary Report. The Panel's timeline was to produce a Final Report two years after the Preliminary Report.

Once the Findings were agreed on, the timeline for finalizing the report was agreed on. Krista was to incorporate all the edits from the meeting by Monday October 1. Panel to provide additional comments and review by October 15. Krista agreed to email significant conflicts for resolution.

Public comments were given at 12:00 by

- David Wetzel of Admiralty Environmental
- Chip Thoma of Responsible Cruising in Alaska

Krista Webb read the written public comments provided at the Technology Workshop. Written comments were provided by:

- Chip Thoma of Responsible Cruising in Alaska
- Joseph W. Geldhof
- Guy Archibald of Southeast Alaska Conservation Council

The meeting was adjourned at 1:15 P.M.