



**ALASKA**  
Department of  
Environmental  
Conservation

**Department of Environmental Conservation (DEC)**

**Cruise Ship Waste Water Science Advisory Panel  
Meeting #3 Agenda  
Centennial Hall, Hickel Room  
Juneau Alaska  
September 21-22, 2011  
September 23, 2011 Goldbelt Conference Room**

***Panel members***

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
Dr. Simon Veronneau	Quinnipiac University School of Business

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

***Alaska Department of Environmental Conservation***

Lynn Kent – Deputy Commissioner  
Michelle Bonnet – Directory, Division of Water  
Rob Edwardson – Cruise Ship Program Manager  
Melissa Goldstein - Cruise Ship Program  
Albert Faure – Cruise Ship Program  
Ed White – Cruise Ship Program

***OASIS Environmental – Facilitators***

Krista Webb  
Max Schwenne

***Interested Public***

Karol Kriens – Crowley

Alan Mearns – NOAA

Hannah McCarthy – Representative Beth Kerttula

Chip Thoma – Responsible Cruising in AK

Mike Tibbles – Alaska Cruise Association

Jonathan Turvey – Holland America

Jon Warrenchuk - Oceana

**Meeting Objectives**

The objectives of the meeting are listed below:

- Benchmark Panel work against the Statute and Panel mandate.
- Review the logistics of how the 2000 Science Advisory Panel completed their report.
- Approve model and data to be used for evaluating economic feasibility of additional methods of pollution prevention, control, and treatment.
- Complete sections of Panel Report pertaining to existing technologies and additional methods of pollution prevention, control, and treatment.

## **Meeting Summary**

### **Wednesday, September 21, 2010**

#### **8:00 a.m. - 8:15 a.m.**

Sign in

#### **8:15 a.m. – 9:00 a.m.** Welcome - Krista Webb, Facilitator

Krista Webb welcomed the Panelists and public. Michelle Bonnet, the Director of the Division of Water for the Alaska Department of Environmental Conservation (DEC) introduced herself and shared her background and relevant professional experience. Panelists introduced themselves. Past, present, and future of Panel work was reviewed.

#### **Past - What the Panel has done:**

January 2010	Panel established
February 2010	Legal Framework
	Existing permit
	Large Cruise Ship Effluent Data
June 2010	Existing AWTS
	Pollution Prevention and Control (SREs)
	Other technologies (Feasibility Study)
October 2010	Naval architecture
	Classification
February 2011	Requested cost data from vendors and operators
	Worked on draft report

#### **Present – what must be accomplished for this meeting:**

September 2011	Identify methods of pollution prevention
	Identify methods of pollution control
	Identify methods of pollution treatment

- Qualitatively evaluate feasibility of systems
- Determine what information necessary to verify technical feasibility
- Identify plan to evaluate economic feasibility
- Qualitatively evaluate environmental costs and benefits of implementing additional methods of pollution prevention, pollution control, and treatment
- Determine what information necessary to verify environmental costs and benefits
- Define roles and responsibilities to complete report

**Future - What must be accomplished next and final goals:**

November 2011	<p>Conference call first week of November to confirm tasks done – OASIS to send out meeting wizard.</p> <p>Create agenda and content for Technology Workshop.</p> <p>Discuss feasibility of face to face meeting in January 2012.</p>
January 2012	<p>Evaluate economically feasible wastewater treatment technologies</p> <p>Rate each alternative for technical and economic feasibility</p> <p>Finalize agenda for Technology Workshop</p>
April 2012	<p>Host Technology Workshop</p> <ul style="list-style-type: none"> <li>• Highlight Panel work and provide clear descriptions of additional methods of pollution prevention, control, and treatment.</li> <li>• Technology conference in form of poster session for public and interested parties to show what alternatives are to meet Statute. Panel members available for Q&amp;A.</li> </ul>
May 2012	<p>Panel work with OASIS to complete Report to present 1) what methods are used now for pollution prevention, pollution control, , and treatment; 2) best options for additional technologically effective and economically feasible cruise ship wastewater methods for pollution prevention, control, and treatment; and 3) the environmental benefit and cost of implementing additional methods of pollution prevention, control, and treatment identified in the report.</p>
August 2012	<p>Panel finalizes Report</p>

**\*\*October 2012**                      **Panel Report due to DEC**

**\*\*\*January 2013**                      **DEC Report due to Legislature**

Michelle Bonnet reviewed the text of Statute 46.03.464 with the Panel and explained that her job was to ensure that the Panel had all the resources they needed to complete the report for the legislature and to encourage the Panel to adhere to the Statute completely.

**9:00 a.m. – 10:15 a.m.** 2001 Science Advisory Panel, Dr. Alan Mearns, NOAA

Dr. Mearns told the Panel about how the 2001 Science Advisory Panel completed their work and their report. Specifically, Dr. Mearns was asked to tell the Panel what the 2001 did to successfully produce and publish findings.

The 2001 Science Panel met regularly, disclosed conflicts of interest, agreed on a risk based framework, divided up the topics, assigned homework with specific authors taking the lead, and they worked well with agencies (DEC, EPA) and industry.

The report was written by organizing into chapter teams with a lead author and co authors. Each panelist was lead author or co author of one or more chapters. Draft chapters were reviewed by all panel members. Facilitator led discussion of overall outline, and DEC contributed sections.

The Panel worked together by holding regular conference calls and 2-3 day face-to-face meetings.

The findings of the 2001 Panel can be found at:

[http://dec.alaska.gov/water/cruise\\_ships/SciencePanel/scienceadvisory.htm](http://dec.alaska.gov/water/cruise_ships/SciencePanel/scienceadvisory.htm)

Dr. Mearns' presentation slides are available at:

[http://dec.alaska.gov/water/cruise\\_ships/SciencePanel/meeting092111.html](http://dec.alaska.gov/water/cruise_ships/SciencePanel/meeting092111.html)

Ken Fisher requested data regarding copper trends in mussels over time; specifically, the NOAA Mussel Watch Data.

Reinaldo Gonzalez noted that the results of this study were obviously not considered, or the Panel would not be in place. Silke Schiewer wondered if the conclusions of the present Panel would be reviewed. The Panel discussed what their purpose was; if dilution was considered, the levels of contaminants in cruise ship effluent are well below Water Quality Criteria (WQC). Krista reminded the Panel that the Statute was the result of a citizen's ballot

initiative, which the legislature enacted into law and charged the Panel with looking at the issue more closely.

The Panel discussed what in the issue is based on science and what is based on politics. The WQC are based on science. Meeting WQC at the end of pipe without a mixing zone in the permit is not based on science, but on the ballot initiative. For shoreline discharges, dilution zones are an important component of a permit. WQC were never intended to be applied without a mixing zone.

**10:15 a.m. – 10:30 a.m.** Break

**10:30 a.m. – 12:00 p.m.** Existing treatment methods, Dr. Reinaldo Gonzalez, Burns and McDonnell

Dr. Gonzalez reviewed the existing wastewater treatment technologies by going through the existing report text and elaborating on the various methodologies. Comments and discussion were captured in the report text.

**12:00 p.m. – 1:00 p.m.** No host lunch

**1:30 p.m. – 3:00 p.m.** Facilitated discussion of additional methods and rating of technical effectiveness

The Panel listed all potential additional methods of treatment and brainstormed technical and feasibility considerations, sources of cost and price data, and environmental considerations as outlined in the table below:

Alternatives	Technical/Feasibility Considerations	Sources of Cost/Price Data	Environmental Considerations	Price
No Action  <ul style="list-style-type: none"> <li>• No permit (hold and discharge)</li> <li>• Current permit holders extend permit</li> </ul>	Holding capacity	<ul style="list-style-type: none"> <li>• Hours in Alaska for permitted ships</li> <li>• Hours in Alaska for unpermitted ships</li> <li>• Difference in port hours</li> <li>• Assume when not in port, steaming using fuel.</li> </ul>	Transfers pollution to outside state waters	

Alternatives	Technical/Feasibility Considerations	Sources of Cost/Price Data	Environmental Considerations	Price
<p>Ships retrofit to new system</p> <ul style="list-style-type: none"> <li>• Triton system</li> <li>• AWTS + 3° system (RO or IX)+NH<sub>3</sub></li> <li>• Increase size of bio-reactor</li> <li>• Add aeration</li> </ul>	<ul style="list-style-type: none"> <li>• Complicated to do, must consider space, tanks, holding, vessel stability, certification etc.</li> <li>• Reliability</li> <li>• Holding time limitations</li> <li>• equipment size</li> <li>• Vessel down time</li> <li>• Dock space</li> <li>• Additional or existing tanks</li> <li>• Tailor treatment of different waste streams to target problem concentrations</li> </ul>	<ul style="list-style-type: none"> <li>• Triton system – request cost data</li> <li>• Unit costs of IX and RO systems from vendors</li> <li>• Engineer cost estimation for installation</li> <li>• Request costs from Triton system supplier to access scalability</li> </ul>	<p>Disposal of wash/reject water</p> <p>Energy demand (aeration)</p> <p>Sludge disposal</p> <p>Media transfer of pollutants</p> <p>Carbon footprint increase</p>	<p>Need basis for comparison, possibly based on vessel size and passenger loads</p> <p>Triton system may be only reasonable basis to develop costs</p> <p>-30% to +50%</p>
<p>New system (including 3° treatment on new vessel)</p>	<p>7-10 year leadout to install on new ships. Shipbuilders will not contract to meet future requirements.</p> <p>No proven technology available.</p> <p>Wide range in treatment strategies by owner</p>	<p>Could know cost to estimate system in general.</p> <p>No system currently identified that has been tested in field</p>	<p>Disposal of wash/reject water</p> <p>Energy demand (aeration)</p> <p>Sludge disposal</p> <p>Media transfer of pollutants</p> <p>Carbon footprint increase</p>	<p>2X variation in cost depending upon strategy of owner</p>
<p>Shore based or barge based treatment</p> <p>Construct secondary treatment plant (seasonal use)</p>	<p>Capacity and ability to handle peak loads with holding tanks</p> <p>Ownership and operation?</p>			
<p>Shore based treatment system (box on dock)</p> <ul style="list-style-type: none"> <li>• IX</li> <li>• RO</li> <li>• NH<sub>3</sub></li> </ul>	<p>Freshwater discharge at a port or dock.</p> <p>Put into storm water system?</p> <p>Ownership and operation?</p>	<p>Vendors</p> <p>Engineer cost estimation</p>		

Alternatives	Technical/Feasibility Considerations	Sources of Cost/Price Data	Environmental Considerations	Price
Dispose in Municipal wastewaterTP	Only JDWWTP has secondary treatment, other muni systems would need to upgrade to accommodate increased volume		Transfers metals and ammonia to different permittee	

**3:00 p.m. – 3:15 p.m.** Break

**3:15 p.m. – 4:30 p.m.** Facilitated discussion of environmental benefits and costs of implementing additional methods identified by the Panel

Michelle Ridgway suggested that the Panel identify a construct to evaluate the environmental benefits or effects of having cruise ship effluent meet WQC at the point of discharge. She noted that without comparing something measurable, the Panel would not be able to make any conclusions about environmental benefits. She suggested that one effect of meeting WQC at the point of discharge was that X amount less metals would be released into Alaskan waters. The Panel discussed how to calculate the amount of metals reduced by measuring or estimating the following parameters:

- Number of ships
- Number of voyages or time each ship spends in AK
- Total volume of effluent (measured or estimated based on passenger crew counts)
- Average, measured, or allowable concentrations of dissolved Cu, dissolved Ni, dissolved Zn, and Ammonia in effluent

Once these values are identified, the mass loading of each constituent (the total amount in weight) going into the receiving water could be estimated. Lincoln and Juha did some back of envelope calculations to show how mass loading could be calculated.

The Panel agreed that mass loading would be a way to quantify some net effect of meeting WQC at the point of discharge, but all felt that a baseline must be identified to put a mass loading estimate in context, i.e. what is the current mass of each constituent in the receiving water? What is the receiving water?

They debated ways to establish a baseline to compare any changes in dissolved metal or ammonia loading that may be incurred by meeting WQC at the point of discharge. Many on the Panel agreed that without establishing a baseline, the net difference could be misleading. The amount of dissolved metals and ammonia being discharged must be put into context.

The Panel discussed how to baseline the receiving water:

- Concentrations of constituents multiplied by the estimated volume of water within the 3 mile coastline of Alaska?
- Use river loading data to estimate ambient concentrations?

The challenge is that ambient concentrations of dissolved Cu, dissolved Ni, dissolved Zn and Ammonia in Alaska waters are not readily available and measurements from other areas (such as Seattle) may not be comparable. The Panel agreed that any available data should be obtained and the most applicable estimate should be used. Michelle said that even using global averages would give the Panel some way to base a comparison.

The Panel reviewed the regulatory approach to wastewater permitting and noted that time and distance from discharge (dilution) are always a factor in determining regulatory thresholds. Bioassay studies use concentrations over specific time frames and these toxicity studies are used to set regulatory standards such as the WQC and are designed to be protective of all species. Lincoln described the dilution factors measured by the 2001 Science Advisory Panel and noted how quickly the concentrations of contaminants released at the pipe are diluted to well below regulatory standards and toxicity thresholds.

Michelle acknowledged that dilution happens quickly but wondered what would happen if a ship released its effluent immediately in the vicinity of 90% of the larval herring hatch for the year. Lincoln suggested that the larvae would only be exposed to higher concentrations for seconds prior to dilution and that the potential toxicity from metals would be far less damaging than the effects of the propellers and physical damage from turbulence.

Ultimately, the Panel agreed that making some quantitative estimate of effects was necessary and that there were two ways to measure net effects. The net increase in constituents in the receiving environment compared to baseline (mass loading) and differences in concentrations prior to discharge and after discharge. This discussion was picked up again in the afternoon and the Panel agreed that looking at concentrations and volume of discharge were the priority.

Lincoln again noted that dilution must be part of that discussion and that the “so what” question needed to be answered. Additionally, the suggestion was made that the environmental benefits evaluation needed to compare effluent values and limits to municipalities’ waste water effluent permit values.

The Panel listed the data they would need to do these calculations:

- Any available data regarding ambient concentrations of ammonia, nickel, zinc, and copper in sea water, preferably Alaska
- Estimated volume of receiving water – need to define boundaries
- Measured concentrations of ammonia, nickel, zinc, and copper in effluent water
- Volume of cruise ship effluent

There are significant limitations for obtaining these data. The Panel discussed data gaps and how to estimate or make assumptions to do these calculations.

- Data for concentrations of metals in ambient sea water is not easily available, if at all.
- Which effluent concentrations to use? Using the individual permit standards would overestimate concentrations. Actual discharge data would be more accurate.
- Which year to take baseline – prior to statute? 2009, 2010?

The Panel and DEC further discussed the lack of available data for metals and ammonia in ambient Alaska sea water. Michelle Ridgway said she had forwarded a list of researchers and potential sources to DEC previously. Michelle Bonnet offered to revisit the issue and make additional inquiries to find ambient data.

Simon cautioned that none of these estimates take into account an operator’s potential choice to not meet overly stringent permit limits and to hold and discharge offshore – whether discharging treated wastewater outside the 3 mile state boundary or discharging untreated wastewater outside the 12 mile federal boundary. He stressed that ships mix their wastewater to meet standards and then discharge outside the 3 and 12 mile boundaries as needed.

The Panel also discussed Federal and State permit boundaries and that if less treated and more untreated wastewater is discharged it would negatively affect the receiving water outside the permitted boundaries. This activity is outside the purview of the Panel; however, it is an important point to make in the Panel report.

**4:30 p.m. – 5:00 p.m.** Public Comment

No public comments were offered at this time.

**5:00 p.m.** Adjourn for the day

**Thursday, September 22, 2010**

**8:00 a.m. - 8:15 a.m.** Sign in

**8:15 a.m. – 8:30 a.m.** Review agenda.

The agenda for the day was reviewed.

Rob Edwardson clarified for the Panel the roles of ADEC and OASIS

ADEC has two separate and distinct roles.

- 1) The DEC is responsible for ensuring that Panel work is facilitated toward the statutory goals within established parameters. The Department lead for this is Rob Edwardson.
- 2) The Cruise Ship Program staff are subject matter experts and are responsible for providing research, analysis, and finished products for the Panel's consideration. The Program lead for this is Melissa Goldstein

The contractor (OASIS) role is to glean from the Panel what type of information Panel members need and relay that information to the Department. If the information is relevant and available, the Department will collect the information and if not, explain why. OASIS must then present the collected information to the Panel in a meaningful way.

**8:30 a.m. – 10:00 a.m.** Presentation of Potential Models for Economic Feasibility, (Northern Economics, Inc.), Pat Burden and Cal Kerr

Pat Burden gave an overview of Northern Economics staff and experience providing expertise in cruise ship and tourism economic issues. Cal Kerr presented a potential definition of economic feasibility to the Panel and an overview of the assumptions, challenges, and data sources available to determine if options are economically feasible. The presentation slides are available at:

[http://dec.alaska.gov/water/cruise\\_ships/SciencePanel/meeting092111.html](http://dec.alaska.gov/water/cruise_ships/SciencePanel/meeting092111.html)

Simon Veronneau disagreed that NEI was the best contractor for this evaluation and wanted to see a contractor with more of a global tourism perspective. A discussion ensued as to the mandate of the Panel to meet the Statute and that it is not within the scope of the Panel to focus on world-wide industry effects.

The Panel discussed the definition of economically feasible and debated the wording for defining economically feasible. The Panel was not in agreement that the definition presented below was the best definition, but agreed that it was adequate to work with at this time and could be changed in the future.

*Economically feasible methods of pollution prevention, control and treatment are processes that do not create a disproportionate impact on the cruise industry, e.g. cost increases that result in significant decreases in passenger demand and the impact on the State of Alaska of this decrease.*

**10:00 a.m. – 10:30 a.m.** Break

**10:30 a.m. – 12:00 a.m.** Review of information collected from vendors by Meyer Werft and Melissa Goldstein

Hermann-Josef Mammes of Meyer Werft gave a presentation summarizing the space constraints of waste water treatment systems on cruise ships. He summarized all the variables that can affect concentrations of contaminants in effluent.

He clarified that wastewater treatment systems are supplied by vendors (for both new and retrofitted systems) and explained how installing a polishing system on a new build (what Meyer Werft does) requires different responsibilities from the vendor than retrofitting an existing ship with an additional system. There are different guarantees and varying degrees of support from the vendor. These factors have an effect on the effectiveness and costs of systems.

He was not able to provide specific cost information from vendors because their cost estimates are confidential and specified to their client.

The presentation slides from this presentation are available at:  
[http://wastewaterw.dec.state.ak.us/water/cruise\\_ships/SciencePanel/meeting092111.html](http://wastewaterw.dec.state.ak.us/water/cruise_ships/SciencePanel/meeting092111.html)

Melissa Goldstein presented the results of her requests to vendors for information. The information provided by vendors is inconsistent and difficult

to compare. Her summary table is also available at:  
[http://dec.alaska.gov/water/cruise\\_ships/SciencePanel/meeting092111.html](http://dec.alaska.gov/water/cruise_ships/SciencePanel/meeting092111.html).

**12:00 p.m. – 1:30 p.m.** No host Lunch

**1:30 p.m. – 2:30 p.m.** Discussion of Parking Lot Issues Krista Webb,  
Facilitator

The Panel revisited the economic feasibility definition and confirmed that the third definition was acceptable to work with at this time.

Michelle Bonnet revisited which year to use effluent data from DEC.

Michelle Bonnet asked the Panel to clarify how an estimate of pounds of metal, mass loading, would be used because WQC and toxicity are not addressed in pounds

The Panel clarified that they were much more interested in concentrations and volumes of water. One estimate that might be used is total volume of effluent at x concentration put into state water each year by industry as of a specific data, i.e. this much water at this concentration, not “how many pounds of copper chunked are into the water.” Mass loading can be informative, but it can also be used to make data sound incorrectly alarming.

For discussion of environmental benefit, it may be informative to calculate what discharge is happening over years - will it increase total metal load of the inside passage, compared to mass loading from a river.

The Panel noted that DEC does not have to do calculations, the Panel will do that. They requested the wastewater discharge reports from 2009, when statute went into effect.

The Panel confirmed that they were asking for background data on ambient metals in seawater to characterize ambient conditions in sea water relevant to the four constituents of effluent concern. This is important for the discussion of environmental benefit.

Michelle Ridgway noted that she had contacted researchers and some do have data. She asked them to contact DEC directly (Melissa).

Michelle Ridgway asked the status of GIS data. Rob Edwardson reiterated that State only has jurisdiction inside State permit boundaries, and inside those boundaries, ships are meeting permit levels. Michelle Ridgway stated that this information – where the ships are discharging and at what levels - is very

important since what the Panel recommends will affect what the industry chooses to do and those choices do affect the environment.

DEC confirmed that GIS data just isn't available.

The Panel discussed a graphic for the report of a map that shows various regulatory boundaries and what goes on in them. The cruising patterns are not that variable, there are specific, known routes. Without looking at all the GIS data points, it would be informative to have that figure in the report. With that figure, it would be feasible to see where ships may choose to go offshore to discharge effluent outside permit boundaries.

Michelle Ridgway said she would like to see that report show the evolution of the regulations over time, what has happened and what is going on today. What volume of wastewater is discharged at what concentrations and where? How much and where is it going?

**2:30 p.m. – 3:00 p.m.** Review report draft section by section

Panel went through the report and made specific edits.

**4:30 p.m. – 5:00 p.m.** Public Comment

Chip Thoma, of Responsible Cruising in Alaska, and Jonathan Turvey, of Holland America Lines gave public statements. Transcripts of these statements are provided as Attachment A.

**5:00 p.m.** Meeting Adjourned

**Friday, September 23, 2010 – Work Session at Goldbelt Hotel Conference Room**

**8:00 a.m. - 8:15 a.m.** Sign in

**8:15 a.m. – 11:30 a.m.**

Panel reviewed what they have accomplished for this meeting and planned potential dates for next conference call and meeting.

- Next conference call was tentatively scheduled for the beginning of November
- Next face to face meeting was tentatively scheduled for January 2012

- Technology workshop tentatively scheduled for April 2012

The Panel broke into small facilitated work groups at separate tables to work on individual sections of the report.

The work groups were:

- Technology work group – Reinaldo, Silke, and Bert with Max
- Cost work group – Juha, Simon, Hermann-Josef, and Steve with Krista
- Environmental benefits work group – Michelle, Lincoln, and Mark with Melissa (Ken was not present in this portion of the meeting, but asked to be part of this work group)

Several Panelists needed to leave early to catch planes. The meeting was adjourned at 11:30 without regrouping for a summary. Panelists planned to work on individual tasks and provide status reports at the next conference call.

# **Attachment A**

## **Public Comment Transcript**

1 THURSDAY, SEPTEMBER 22, 2011

2 8:16 AM

3 (This portion not requested.)

4 4:07 PM

5 PUBLIC COMMENT

6

7 MS. WEBB: Does anyone have a  
8 public comment that they'd like to make? Would you  
9 like to make that now?

10 MR. THOMA: Yes. Ready to go.

11 MS. WEBB: Okay.

12 MR. THOMA: Thanks, Krista.

13 For the record, my name is Chip  
14 Thoma. I'm the president of Responsible Cruising  
15 in Alaska. We're the folks that wrote the law and  
16 got the initiative passed and defend it in the  
17 Legislature today.

18 So this is a very important law  
19 for a lot of people, especially those of us who  
20 live along the cruise ship routes. And the people  
21 who supported this in the election, for instance,  
22 are those of us who lived along the water. All the  
23 coastal communities, with the exception of  
24 Ketchikan, supported it overwhelmingly. And those  
25 who were the furthest away from the water voted

1       against it.

2                       So the good news that I have today  
3       is that I think that there is an economically  
4       feasible solution to a lot of the problems that  
5       we're having with gearing these ships up, and that  
6       is, of course, to discharge that with onshore  
7       treatment. And I think that Juneau is the solution  
8       to that problem.

9                       Recently, our City and Borough  
10       agreed to fund and to design two new cruise ship  
11       docks for \$61 million, and part of that design is  
12       to hook up those two docks to the sewage treatment  
13       plant.

14                      They also, at the same time,  
15       approved another \$400,000 to hook up the other  
16       private dock. So all four docks will be hooked up  
17       in Juneau by the year 2015. That's for certain.  
18       That's a timeline schedule.

19                      Next year, in 2012, we'll have two  
20       docks hooked up, two private docks. So we'll be  
21       doubling our capacity next year in 2012. We'll be  
22       doubling it again 2015.

23                      So I think this is the solution.

24       Hearing Ms. Bonnet's comment about secondary  
25       treatment being the standard for this plant, I

1 think that we can solve the problem.

2 As you know, the Inside Passage  
3 with Juneau, Skagway, Haines, and Hoonah, those are  
4 the four -- and Glacier Bay -- those are the five  
5 areas where it's hard to discharge and to hold it  
6 for all those successive days. More and more,  
7 ships are going from Seattle straight to Sitka and  
8 straight to Glacier Bay, and they are starting at  
9 the top of northern Southeast, making Juneau the  
10 third-day stop, which is even a better situation  
11 for a lot of ships who need to discharge.

12 So any ship that needs to  
13 discharge by 2015, I think there will be  
14 accommodations for them in Juneau, and we have  
15 plenty of room at this plant. So I think that's  
16 the solution, and I thank you for your time and all  
17 your service.

18 Any questions? Steve?

19 MR. REIFENSTUHL: So you would  
20 support bringing this effluent into Juneau --

21 MR. THOMA: Yes.

22 MR. REIFENSTUHL: -- and  
23 discharging to Gastineau Channel?

24 MR. THOMA: To our mixing zone  
25 right here. our 40-year-old mixing zone. Right.

1 We've been discharging there for 40 years --

2 MR. REIFENSTUHL: Not at the water  
3 standards the cruise ships have to maintain, but  
4 what the City of Juneau has to maintain?

5 MR. THOMA: What the City of Juneau  
6 has to maintain would be best. However, if it's  
7 required, for any reason, to put a polisher in for  
8 five months for that segmented part, the cruise ship  
9 part of it, I guess we could do that. It would be  
10 far easier to do everything by secondary treatment.

11 Carson Dorn is the designer of  
12 this program. He told me yesterday that they can  
13 only accept treated effluent. They are not going  
14 to accept any sludge. They are not going to accept  
15 any galley water. Only Princess is able to do  
16 that.

17 So the other three docks are going  
18 to be set up as treated effluent only, and I think  
19 it, again, solves the problem, as long as it's  
20 secondary treated.

21 MS. WEBB: And they're not going to  
22 have a problem with the plant with not having enough  
23 percent removal of the BOD and the TSS if they're  
24 getting treated effluent?

25 MR. THOMA: My understanding is the

1 plant is in good shape to go right now for all four  
2 ships.

3 MR. LOEHR: I'll look into that a  
4 little bit more, because I just -- the percent  
5 removal requirements for a municipality is one of  
6 those funny things that accepting very clean  
7 effluent can lead to a problem. They could meet the  
8 concentration limits, but because the total mix was  
9 much weaker, lower in total suspended solids or BOD,  
10 you could take hits on the percent removal. I would  
11 just want to --

12 MS. WEBB: Would they be -- would  
13 they have to modify their permit for their percent  
14 removal to be different?

15 MR. LOEHR: Well, if they -- well,  
16 you know, maybe the volumes aren't such that it's an  
17 issue. I'm just raising that. I work with  
18 municipalities a lot, and I just --

19 MS. WEBB: Treat it like  
20 stormwater? Do you know anything --

21 MR. BUGGINS: Well, I don't think  
22 they can modify their permit.

23 MS. WEBB: Right.

24 MR. BUGGINS: -- because the  
25 percent removal is part of the definition of the

1 secondary treated effluent. And what -- I mean,  
2 yeah. What Lincoln is saying is something that  
3 needs to be looked at. I mean, that's the same  
4 thing that happens when you get a lot of rainwater  
5 entering your system.

6 MR. LOEHR: Yeah. Now, that's the  
7 city's concern. And if they say they can take it,  
8 then hopefully they can.

9 MR. VERONNEAU: When we first  
10 discussed this on kind of an operational flexibility  
11 point of view, where assumption did not have  
12 advanced wastewater treatment system or an advanced  
13 water treatment system that would work to a higher  
14 level, and that gave them flexibility to discharge,  
15 in these cases, nontreated or, you know, just  
16 regular graywater. And that was kind of the primary  
17 discussion of it in that respect.

18 Or, you know, a company that would  
19 have a system onboard that meets the higher level  
20 but then would fail for a number of weeks or would  
21 not -- you know, would have a problem onboard.  
22 Then they would have the flexibility to discharge  
23 this nontreated.

24 So I'm not sure that -- I think  
25 the possibility to discharge treated is a great

1 benefit in terms of operation. And then it's just  
2 an added cost to the line to do. But I don't know.

3 MR. BUGGINS: I would think they  
4 would want to discharge some of their blackwater to  
5 get rid of some of the ammonia load.

6 MS. WEBB: And does that -- oh, I'm  
7 sorry to interrupt.

8 MR. BUGGINS: No. That's fine.

9 MS. WEBB: Did somebody else --

10 MR. THOMA: Let me make one last  
11 comment about financing, economically feasible  
12 again. The State of Alaska is, to my knowledge, the  
13 most wealthy state in the nation per capita. We  
14 have over \$40 billion in the Permanent Fund, over  
15 \$15 billion sitting in the Legislature.

16 This Legislature is very, very  
17 inclined to support any industry in any way, shape,  
18 or form. We're even supporting a timber industry  
19 still in this state, if you can believe that. But  
20 they are very, very interested in helping the  
21 cruise industry. If it needs an addition to this  
22 plant, or if it needs low-interest or no-interest  
23 loans for these cruise ships to update their  
24 systems, I think those moneys are available.

25 So, again, economically

1 feasible -- I think the State of Alaska can finance  
2 it. So thank you very much.

3 MS. WEBB: I do have a question.  
4 So is Carson Dorn where to go to find out the cost  
5 estimates of these plant upgrades and that kind of  
6 stuff?

7 MR. THOMA: Carson Dorn has all the  
8 information. Jim Dorn. Thanks.

9 MS. WEBB: Thank you.

10 Okay. There is my document.

11 MR. TURVEY: Are you going to offer  
12 additional opportunities for public comment?

13 MS. WEBB: I'm sorry. I didn't see  
14 you. Are you ready -- do you want to make a public  
15 comment?

16 MR. TURVEY: Yes.

17 MS. WEBB: Go right ahead, please.

18 MR. TURVEY: First off, I thank you  
19 very much for the opportunity to sit in. I haven't  
20 been in on this session for a long time. So I just  
21 wanted to offer some comments accumulated through  
22 the course of the day. My name is John Turvey. I'm  
23 with Holland America Line.

24 I noted there was a lot of  
25 discussion -- obviously difficult discussion -- on

1 economic feasibility. That's going to be a tough  
2 one. And you spent a lot of time talking about  
3 what's economically feasible or not, and I noted  
4 that your definition discusses the impact on  
5 customer demand and on the cost to Alaska  
6 communities, but it doesn't really talk about what  
7 the impact would be in terms of an absorbed cost to  
8 the cruise lines.

9 It is possible for costs to be  
10 imposed on the cruise lines which they are not able  
11 to pass on, which they are not able -- which are  
12 not measurable ashore, but are nonetheless an  
13 economic impact and will have an effect on the  
14 numerator in the cost/benefit ratio and should be  
15 captured; so I would encourage you to consider that  
16 in future definitions.

17 The other element of that is going  
18 to be, when you start talking about cost/benefit,  
19 of course, is: How do you quantify the benefit?  
20 That's tougher than the numerator, and I look  
21 forward to hearing how you plan to do that.  
22 Because, in the end, it's going to be a question  
23 of: Is the pain worth the gain? And that's a  
24 tough one.

25 Keep in mind that, as you go ahead

1 and we come up with those evaluations, those are  
2 decisions that can be evaluated at a fleet-wide  
3 level, but also decisions that will be made on a  
4 ship-by-ship basis. The cost/benefit ratio to a  
5 fleet may calculate differently than that to a  
6 given vessel, depending on size, age, number of  
7 guests, installed equipment, cost to retrofit, what  
8 have you.

9 So it's important to think about  
10 that as you look at the fleet and recognize that a  
11 decision, fleetwide, which may say it pays out and  
12 we ought to do it, could still result in some  
13 interesting decisions on a ship-by-ship basis in  
14 terms of cost to retrofit and ultimately  
15 deployment.

16 I had wanted to interject, because  
17 I know there was some discussion relative to  
18 discussion on IMO and the Baltic -- and maybe this  
19 is a personal itch I want to scratch. But a couple  
20 of things: One, the Baltic issue is far from  
21 settled. They know they're going to do something,  
22 but they don't really know what they're going to  
23 do. Oftentimes -- and we've been involved in a lot  
24 of discussions elsewhere -- where they say, "Oh,  
25 well, this is analogous to the Baltic," and it's

1 really not.

2 I'll remind you that the Baltic is  
3 a shallow, brackish, low-water-exchange body of  
4 water surrounded by 85 to 95 million people with  
5 many large urban areas. It historically has  
6 instances of nutrient challenges, none of which can  
7 be ascribed to the state of Alaska.

8 And I would also add that a  
9 significant element of their strategy, moving  
10 forward, is offload capacity in large part  
11 dependent on those very large urban areas which can  
12 afford to do it.

13 And so be cautious about drawing  
14 analogies with the Baltic, is I guess the best way  
15 I'd put it.

16 Relative to vendor guarantees, one  
17 of my favorite thoughts relative to vendor  
18 guarantees comes from the old and wise engineering  
19 theoreticist, Yogi Berra, who once said, "In  
20 theory, there is no difference between theory and  
21 practice. In practice, there is."

22 And so if you have you've got a  
23 bench-top test, that's great; but you got to show  
24 me it works onboard. Scalability is a key, key  
25 element.

1                   Last but not least, there was some  
2                   discussion about further characterization of  
3                   receiving waters as an element of determining what  
4                   is a potential impact to those receiving waters.  
5                   And all I would ask you is to be careful what you  
6                   ask for. Because when you do, you're going to  
7                   generate data that will some day show up on a 305  
8                   list and will some day subject some of that water  
9                   to TMDL, and that will not apply strictly to cruise  
10                  ships. So take a look.

11                  That's all I've got.

12                  MS. WEBB: Thank you. Are there  
13                  any questions?

14                  MR. KIUKAS: I didn't completely  
15                  understand the last sentence. TMDL?

16                  MR. LOEHR: Oh, there's a  
17                  regulatory program in the Clean Water Act where, if  
18                  there is data that shows water is violating water  
19                  quality standards, it goes on a list that then  
20                  triggers the requirements that develop total maximum  
21                  daily loads.

22                  But I don't think, John, that in  
23                  characterizing the receiving waters out here, that  
24                  they are going to find data that changes that.

25                  MR. TURVEY: Maybe not, but they

1 did in Skagway.

2 MR. LOEHR: That was sediments.

3 Good point.

4 MR. TURVEY: Thank you.

5 4:20 PM

6 END OF REQUESTED PORTION

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25