



ALASKA
Department of
Environmental
Conservation

Department of Environmental Conservation (DEC)

**Cruise Ship Waste Water Science Advisory Panel
June 10-11, 2010
FINAL Meeting Summary**

The Science Advisory Panel met from 8:00 a.m. to 5:00 p.m. June 10 and from 8:00 a.m. to 11:30 a.m. on June 11, 2010 at Centennial Hall in Juneau, Alaska.

The meeting objectives are listed below:

- Review OASIS/DEC feasibility study;
- Review and evaluate source reduction evaluation plans and DEC summary;
- Review existing on-board wastewater treatment systems;
- Provide follow-up information based upon previous Panel information requests; and
- Make Panel decisions regarding how to find out about existing, new, and emerging technologies.

Attendees at the meeting are listed below:

Cruise Ship Waste Water Science Advisory Panel

Mark Buggins*	Municipality of Sitka
Ira Donovan^	Burns and McDonnell
Kenneth Fisher	EPA
Juha Kiukas	Ecomarine
Lamberto Sazon	United States Coast Guard
Lincoln Loehr**	Stoel Rives LLP
Hermann-Josef Mannes ^^	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.
 *** Steve Reifenstuhl fills the legislatively mandated commercial fishing industry Panel seat.

**** Michelle Ridgway fills the legislatively mandated NGO Panel seat.
^ Ira Donovan is the alternate for Dr. Reinaldo Gonzales.
^^ Hermann-Josef Mannes is the alternate for Thomas Weigend.

Alaska Department of Environmental Conservation

Lynn Kent – Division of Water Director
Märit Carlson-Van Dort – Acting Cruise Ship Program Manager
Albert Faure – Cruise Ship Program
Ed White - Cruise Ship Program

OASIS Environmental – Facilitators

JoAnn Grady
Krista Webb
Max Schwenne

Interested Public (from sign in sheet)

Tim Burns – Disney Cruise Lines
Wei Chen – Hamworthy
Bob Doll – City and Borough of Juneau Assembly
Drew Green – Cruise Line Agencies of Alaska
Mark Harris – Crowley
Richard Heffern – DEC
Chip Thoma – Responsible Cruising in Alaska
Mike Tibbles – Alaska Cruise Association
Dave Wetzel – Admiralty Environmental Juneau

Presentations were provided on the following subjects:

- Feasibility Study: Reducing Concentrations of Dissolved Metals and Ammonia in Large Passenger Vessel Wastewater Discharges (Max Schwenne, OASIS)
- Cruise Line Source Reduction Evaluations (Albert Faure and Ed White, DEC)
- Arrangements between Princess Cruise Lines and the City and Borough of Juneau Wastewater Treatment Plant (Scott Jeffers, CBJ and Jim Dorn, Carson Dorn)
- Gold Standard in City Wastewater Treatment (Ira Donovan, Burns and McDonnell)

All the objectives of the meeting were not met. The Panel determined that they did not have adequate data to evaluate the performance of existing treatment systems.

Data requests are listed in the spreadsheet included in this summary. The spreadsheet may be used for offline Panel discussion with OASIS and DEC via

e-mail to prioritize requests and formulate them into specific requests for DEC and the Cruise Ship industry.

Issues:

- Existing treatment system data is not comparable because influent water sources and quality are not documented.
- To evaluate the performance of existing treatment systems, the Panel must understand the existing waste streams and sources of contamination in wastewater. It isn't feasible for the Panel to understand the waste streams because the systems are not operated identically (separate blackwater, commingle waste streams etc.) to make comparisons valid and it isn't known how individual ships are meeting standards.
- Information currently available to the Panel (such as bunker water data set) is not adequate. Panel needs data that is well documented and accurately represents the waste and input streams.

Data Requests:

Request	Rationale Discussion/Limitations	Decision for Action Priority of Request
<p>Ship-by-ship mass balances and process diagrams with detailed mass balance information on the constituents of concern -- BOD, TSS, ammonia, and metals, in addition to any other information they would have that just illustrates how the streams are segregated onboard, and which ones are treated.</p> <p>Panel would like to have sample data following the water through the vessel and reporting measured concentrations of COCs throughout the system – one ship for each type of system</p>	<p>Mass balance on every ship would be expensive and not feasible for industry to do in consistent way.</p> <p>DEC can only get data from permitted vessels.</p> <p>This information was requested from the cruise ship companies and should be provided in the Vessel-Specific Sampling Plans (VSSPs); however, it is not. In addition, Ocean Rangers found many meters not working or disconnected.</p> <p>Suggestion was made to get mass balances for copper and ask for influent data and operator procedures from those already testing and trying to reduce ammonia (Scanship and Hamworthy).</p>	
<p>Concentrations of COCs in Influent sources</p>	<p>It is not known when a ship uses processed or bunker water. Suggestion was made to assume</p>	

Request	Rationale Discussion/Limitations	Decision for Action Priority of Request
<p>Evaporated water</p> <p>Bunker water</p>	<p>influent water quality is poor and concentrate on comparing treatment systems.</p> <p>Influent information is desired because it may direct solution to pretreatment of water coming into systems.</p> <p>Evaporated water should not have metals in it regardless of whether metals were added in sea chest or from antibiofouling chemicals. Metals in made water would have to leach from piping or equipment.</p> <p>Ammonia may be present in evaporated water.</p> <p>Existing data set has high variation and uncertainty. Data are suspect because of issues with QA/QC.</p> <p>Copper and Nickel are not tested in drinking water systems by the city, any testing performed is at the tap and may not represent the quality of water provided to the vessels.</p>	
<p>Equipment and Piping Materials List</p> <ul style="list-style-type: none"> • Piping Materials • Valve materials • Evaporator materials 	<p>Testing those materials for leaching would not be valid because influent water quality is variable, for example, high salt content in drinking water would corrode pipes more rapidly.</p> <p>Suggestion was made to request any reports on non destructive testing for pipe wall thickness</p>	
<p>Cost estimates were requested for three scenarios:</p> <ol style="list-style-type: none"> 1. Take cruise ship WW onshore, apply tertiary treatment in separate unit, discharge to meet 	<p>Only applicable to JDWWTP?</p> <p>WWTP may have difficulty meeting percent removal requirements if they accept pretreated discharge.</p>	

Request	Rationale Discussion/Limitations	Decision for Action Priority of Request
<p>WQS at end pipe</p> <ol style="list-style-type: none"> 2. Upgrade WWTP so that it applies tertiary treatment to all incoming waste and all waste meets cruise ship permit standards at end of pipe 3. No action, cruise ships discharge to WWTP who will meet their current permit standards 	<p>Will the requirement to meet WQS at end of pipe be transferred to the municipality WWTP if they treat all cruise ship WW?</p> <p>Treatment of waste water with increased levels of ammonia and metals may change future APDES permit limits for WWTP.</p>	
<p>Other Locations</p> <ol style="list-style-type: none"> 1. What other cities treat cruise ship wastewater? 2. What are currently used innovative shoreline treatment systems? 	<p>Limit research to Alaska, in which case JDWWTP is the only shoreline treatment facility that treats cruise ship wastewater, or look at other states and countries such as Bermuda and Helsinki.</p>	
<p>Currently Used Equipment (for each ship?)</p> <ol style="list-style-type: none"> 1. What was the cost of installing equipment used now? 2. Were they new installations or retrofits and what were costs of each 3. What is cost of operating and maintaining current equipment? 4. What was theoretical capacity or standard expected? 5. Is the equipment 	<p>This information was requested from the cruise lines before and may be considered proprietary?</p>	

Request	Rationale Discussion/Limitations	Decision for Action Priority of Request
sufficient to meet daily need?		
Question pertaining to Revenue <ol style="list-style-type: none"> 1. How many passengers travel to Alaska each year? 2. What are the cruise ship ports? What is the number of passengers at each destination? 	Is this data obtainable from DEC or Cruise Lines?	
Questions pertaining to passenger tax <ol style="list-style-type: none"> 1. How much is the passenger tax? 2. What is the purpose of the passenger tax? 3. Is there money that could be used for infrastructure improvement? 		DEC to provide response.