

Alaska State Legislature

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Session: (Jan-May)
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REPRESENTATIVE JOHN HARRIS

MEMORANDUM

March 1, 2009

TO: Representative Mark Neuman
Representative Craig Johnson
House Resources Committee

FROM: Representative John Harris

SUBJECT: HB134, Cruise Ship Discharge

Thank you for scheduling HB134 for a hearing in the House Resources Committee on Monday, March 2nd.

HB134 will allow the Alaska Dept. of Environmental Conservation the ability to regulate and administer Alaska Water Quality Standards governing pollution discharge permits for large commercial passenger vessels. The current state law administering discharge permits was established as a part of a substantial initiative in 2006 to regulate the cruise ship industry.

During the 2006 election process, the *Anchorage Daily News* wrote an editorial (August 16, 2006) that said "vote yes, then fix it." Since 2006, there have already been two bills amending the initiative to clarify certain provisions.

HB134 is an attempt to amend the initiative to provide the DEC reasonable latitude to enforce pollution standards. It removes language from the initiative that has proven to be too stringent of a standard for cruise ships.

With passage of this bill, DEC will be expected to enforce high quality standards and continue to develop technology that will allow ships to have the cleanest possible discharges.

CS FOR HOUSE BILL NO. 134(CRA)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-SIXTH LEGISLATURE - FIRST SESSION

BY THE HOUSE COMMUNITY AND REGIONAL AFFAIRS COMMITTEE

Offered: 2/18/09

Referred: Resources

Sponsor(s): REPRESENTATIVES HARRIS, Kelly, Millett, Johansen, Foster, Keller, Chenault, Coghill, Johnson, Wilson, Muñoz, Hawker

A BILL

FOR AN ACT ENTITLED

1 **"An Act relating to the terms and conditions of commercial passenger vessel permits for**
2 **the discharge of graywater, treated sewage, and other waste water; and providing for an**
3 **effective date."**

4 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

5 * **Section 1.** AS 46.03.462(b) is amended to read:

6 (b) The minimum standard terms and conditions for all discharge permits
7 authorized under this section require that the owner or operator

8 (1) may not discharge untreated sewage, treated sewage, graywater, or
9 other wastewaters in a manner that violates any applicable effluent limits or standards
10 under state or federal law, including Alaska Water Quality Standards governing
11 pollution [AT THE POINT OF DISCHARGE];

12 (2) shall maintain records and provide the reports required under
13 AS 46.03.465(a);

14 (3) shall collect and test samples as required under AS 46.03.465(b)

1 and (d) and provide the reports with respect those samples required by
2 AS 46.03.475(c);

3 (4) shall report discharges in accordance with AS 46.03.475(a);

4 (5) shall allow the department access to the vessel at the time samples
5 are taken under AS 46.03.465 for purposes of taking the samples or for purposes of
6 verifying the integrity of the sampling process; and

7 (6) shall submit records, notices, and reports to the department in
8 accordance with AS 46.03.475(b), (d), and (c).

9 * **Sec. 2.** This Act takes effect immediately under AS 01.10.070(c).

HOUSE RESOURCES COMMITTEE
Supplemental Materials

FISCAL NOTE

STATE OF ALASKA
2009 LEGISLATIVE SESSION

Fiscal Note Number: 1
 Bill Version: CSHB 134(CRA)
 (H) Publish Date: 2/18/09

Identifier (file name): HB134-DEC-WQ-02-13-09

Title: Cruise Ship Wastewater Discharge Permits

Dept. Affected: Environ. Conservation
 RDU: Division of Water

Sponsor: Representative Harris

Component: Water Quality

Requester: House Community and Regional Affairs Committee

Component Number: 2062

Expenditures/Revenues

(Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information					
		FY 2010	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
OPERATING EXPENDITURES							
Personal Services							
Travel							
Contractual							
Supplies							
Equipment							
Land & Structures							
Grants & Claims							
Miscellaneous							
TOTAL OPERATING		0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES							

CHANGE IN REVENUES ()							
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FUND SOURCE

(Thousands of Dollars)

1002 Federal Receipts							
1003 GF Match							
1004 GF							
1005 GF/Program Receipts							
1037 GF/Mental Health							
Other Interagency Receipts							
TOTAL		0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2009) cost:

0.0

POSITIONS

Full-time							
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

HB 134 has no fiscal impact on the Department of Environmental Conservation.

Prepared by: Lynn J. Tomich Kent

Division: Water

Approved by: Dan Easton

Deputy Commissioner

Phone (907) 269-7599

Date/Time 2/13/09 3:00 PM

Date 2/13/2009



— HOUSE RESOURCES COMMITTEE —
Supplemental Materials

**Department of Environmental Conservation
Testimony of the Division of Water before the
House Community and Regional Affairs Committee on HB 134
February 17, 2009**

The Department of Environmental Conservation (DEC) has been implementing the Cruise Ship Initiative that was passed by Alaskan voters in 2006. The initiative included three main environmental provisions:

- A requirement to have an Ocean Ranger on board
- A requirement for vessels to report their location hourly to DEC
- A requirement for vessels that intend to discharge wastewater to obtain a permit from DEC.

I would like to provide an update on the environmental requirements of the initiative including the new Ocean Ranger program, the permit requirements, and the impact of HB 134.

Citizen's Initiative - Ocean Rangers

The initiative required an Ocean Ranger (a U.S. Coast Guard-licensed marine engineer) to be on board all large cruise ships entering Alaska waters to observe vessel compliance with state and federal environmental, sanitation, health and safety requirements. The program is funded by a \$4/berth fee that nets approximately \$4.0 million/year.

DEC implemented a pilot program during the 2007 cruise ship season, using marine engineers and environmental professionals on board some vessels to evaluate training needs for the Ocean Rangers; to develop an Ocean Ranger checklist for observations; and to learn about the issues surrounding reservation of berths, scheduling of Ocean Rangers, and communications between Ocean Rangers and DEC.

Full implementation of the Ocean Ranger program started with the 2008 season:

- An Ocean Ranger was on-board 88% of the voyages for the full time they were in Alaska waters.
- Other vessels were visited by an Ocean Ranger via in-port inspections.
- DEC received over 2,000 daily Ocean Ranger reports with 126 incidents that required follow-up. Most of the issues were immediately resolved by the vessels.

Citizen's Initiative - Vessel Tracking

The citizen's initiative requires the ships to provide hourly location information to DEC. All vessels complied with this requirement and DEC has been able to use the information to verify vessel compliance.

Citizen's Initiative - Wastewater Discharge Permit

The initiative required large cruise ships to obtain a wastewater discharge permit from DEC and to comply with Alaska's water quality standards "at the point of discharge."

Alaska's water quality standards describe how clean Alaska's fresh and marine waters have to be to protect the various uses – drinking water, contact recreation, and protection of aquatic life. The standards apply to the waterbody and not directly to a wastewater discharge, except in the case of discharges from large cruise ships where the discharge must meet the water quality standards at the point of discharge.

DEC issued a general permit on March 25, 2008. The permit contains "long term" effluent limits for ammonia, copper, nickel, and zinc based on the water quality standards. These strict effluent limits must be met by the 2010 cruise ship season.

The permit also contains a compliance schedule and "interim limits" that are less stringent for the 2008 and 2009 cruise ship seasons.

HB 134

The effect of HB 134 would be to allow DEC, under certain circumstances, to authorize mixing zones for treated wastewater discharged from cruise ships. A mixing zone is an area where water quality standards can be exceeded while the wastewater has a chance to mix with receiving waters.

We have been looking at the science around cruise ship wastewater for years. For the last few years we have been engaged in a series of studies, some in conjunction with the U.S. Environmental Protection Agency, about how cruise ship discharges mix with receiving waters. We are currently investigating potential wastewater treatment technologies. In fact, we have a draft report out on cruise ship wastewater treatment technologies and are sponsoring a public work shop on that topic tomorrow.

Based on our work to date, the following are some of the facts as we know them.

1. Quality of treated wastewater

All large cruise vessels discharging in Alaska waters have installed Advanced Wastewater Treatment systems that produce a high quality effluent.

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 nine parameters.

Focusing just on the parameters of concern (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).

If we look at exceedances of the stricter long term limits, we see a different picture. Based on 2008 effluent monitoring, there would be 563 exceedances of the long term permit limits for those same parameters. That means approximately 68% ($563/824 * 100 = 68.3\%$) of the data points would exceed the long term limits.

2. Dilution Studies

It is important to understand the effects of cruise ship discharges on Alaska waters. In order to do that, DEC must evaluate both the quality of the wastewater discharge in conjunction with the dilution that it is subject to. This information can then be used to estimate whether the wastewater would cause exceedances of Water Quality Standards in the receiving waters.

DEC convened a Science Advisory Panel¹ to evaluate the results of a field study that EPA conducted in 2001 to determine the effect of discharges on Alaska waters when the vessel is underway. The Science Panel determined that when a typical large cruise ship is moving at a minimum speed of 6 knots, the wastewater discharged is subject to tremendous dilution. For wastewater discharged at 200 cubic meters/hour, the dilution factor is 50,000. When the sample results of the cruise ship wastewater are divided by the 50,000 dilution factor, the Science Panel concluded that the wastewater would almost instantaneously meet Alaska Water Quality Standards in the receiving water.

During the 2008 legislative session, the legislature directed DEC to evaluate how treated cruise ship effluent mixes with and dilutes into receiving waters. We conducted the study in Skagway this past season in conjunction with research the

¹ See the following website for more information: http://www.dec.state.ak.us/water/cruise_ships/scienceadvisory.htm

U.S. Environmental Protection Agency was performing with its Ocean Research Vessel "Bold." We provided an interim report of the study to the legislature on January 12, 2009.

The study last summer was designed to collect field data in order to calculate the dilution that occurs to wastewater when it is discharged under worst case conditions -- from a stationary cruise ship into a confined receiving environment with limited flushing. A ship moored in Skagway Harbor represents a worst case situation for dilution.

The results of the study were mixed. Under certain assumptions, Water Quality Standards would be met in the receiving water within 15 meters of the vessel. Using other assumptions, it will take a greater distance from the vessel to meet Water Quality Standards.

While the dilution study work is not complete, there is some suggestion that in certain worst cases, mixing zones may not be appropriate for moored vessels.

3. Technology Review

DEC is not currently aware of treatment systems that are readily available to be installed on all vessels by 2010 and that would produce effluent meeting water quality standards without mixing zones.

We are in the process of evaluating the cruise line's efforts to reduce ammonia, copper, nickel, and zinc in their wastewater effluent by evaluating potential source reduction and, as necessary new treatment technologies.

We have retained a consultant to evaluate new and emerging technologies that could potentially be installed on cruise ships to meet the water quality standards at the point of discharge. A draft report is available for review and a technology workshop is scheduled for Wednesday, February 18. Information from the workshop will be incorporated into a final report expected April 13.

4. Existing Regulations

DEC has existing regulations that allow a wastewater discharge permittee to apply for a mixing zone with their permit. The regulations include a 19 part test that must be met before DEC can authorize a mixing zone, including:

- That the effluent is first treated to remove, reduce and disperse the pollutants using the most effective, technologically and economically feasible methods.

The anti-degradation policy also requires the use of "methods of pollution

prevention, control, and treatment found by the department to be the most effective and reasonable” and that wastes and other substances to be discharged “be treated and controlled to achieve . . . the highest statutory and regulatory requirements.”

If mixing zones were allowed, DEC would modify the cruise ship wastewater discharge general permit to include mixing zones where appropriate. Any proposed permit modifications would require a public review. Mixing zones may be prohibited in some areas and would only be allowed in other areas and under conditions that would fully protect aquatic life and other uses of Alaska’s waters.

The modified permit would still require use of best available treatment technologies. Existing water quality regulations prohibit backsliding in treatment technology or decreases in effluent quality.

Every five years when the general permit is renewed, DEC must reevaluate what comprises best available treatment technologies. Renewed permits are modified to reflect any new, commercially available treatment technologies.

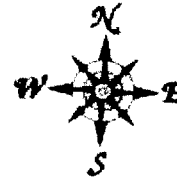
Fiscal Impact - HB 134 has no fiscal impact for the Department.

HOUSE RESOURCES COMMITTEE

Supplemental Materials



Earth Island Institute



Responsible Cruising in Alaska

February 2, 2009

Dear Alaska Legislators,

The session has started and cruise industry lobbyists are once again filling the capitol. As non-profit, public organizations, CSAW and RCA cannot match the hours the cruise industry and their allies will spend to change important provisions of the cruise ship initiative passed by voters in 2006. The cruise industry wants you to (1) repeal the ban on "mixing zones" for large vessels (current law requires these floating cities to meet Alaska's Water Quality Standards (WQS) at the point of discharge), and (2) reduce the tax levies on the passengers and the cruise lines.

Here are the facts: the cruise lines have not installed any new wastewater treatment equipment on their ships since 2006. Instead, the industry has directed their lobbyists to try and repeal state law rather than comply with our pollution requirements. The industry claims the new law cannot be met, yet many ships are already meeting most of the discharge standards without mixing zones. In fact, most pollution problems appear to be related to older ships in the cruise fleet. Significantly, the Alaska Department of Environmental Conservation (ADEC) has given the cruise industry until 2010 to comply with the WQS without penalty.

As part of this thoughtful approach to implementing the law, ADEC is hosting a technology conference on cruise ship discharges on February 18 in Juneau, where vendors and scientists will present treatment technologies that can resolve the few remaining discharge issues without changing the mixing zone rule. ADEC has a worthy goal — working with the cruise industry, science, the public, and interested organizations to identify ways to improve discharge performance and ensure the health of our marine resources. Repealing the rule related to diluting discharges before these technologies are evaluated and perhaps included in pilot programs in 2009 is clearly premature. If the cruise industry wants decisions to be based on science (as they claim) they should cooperate with DEC's technology evaluation process and be open to trying to meet the standards, rather than working to repeal them before the department's scientific evaluation has been completed.

Segments of the cruise industry have criticized the passenger fee or "head tax" sanctioned by Alaska's voters in 2006. An independent economic review of the 2007 cruise season by the McDowell Group demonstrated that the taxes and fees passed in 2006 did not cause any decrease in cruise ship passenger visitation to Alaska or passenger spending in ports of call. The \$50 head tax paid by cruise passengers is a tiny fraction of the total costs incurred by a passenger when they visit Alaska. The visitor head tax and the other cruise-related revenue (the corporate income tax on marine operations and the cruise gambling tax) have been successfully collected and disbursed by the Alaska Department of Revenue in a competent and efficient manner since 2007. The allocation of a portion of these revenues is restricted by federal law, and the Alaska Legislature has properly appropriated the revenue to comply with both state and federal laws. This revenue has greatly benefited Alaskan communities impacted most by cruise operations.

Revenue from these new taxes has been extremely helpful in financing new docks, harbors and port facilities – the very infrastructure that allows cruise visitors to enjoy their trip to Alaska while ensuring the cruise industry remains successful. Without these cruise passenger revenues, funds for construction of safe & efficient tourism infrastructure would need to be cobbled from local property and sales taxes, bonding and other erratic sources. At a time when many Alaska families are struggling to make ends meet, asking the one million summer tourists and Miami-based cruise companies to pay their fair share for needed tourism infrastructure makes sense.

The comprehensive initiative passed by Alaska voters in 2006 addressed critical shortcomings related to taxation and wastewater treatment oversight for the cruise industry. The Alaska Department of Revenue has done an exemplary job collecting the new taxes without unnecessary fees and costs. Enacting reasonable taxes on the cruise companies and passengers to build necessary tourism infrastructure makes far more sense than having coastal communities fund the construction of cruise wharfs, docks and tourist roadways themselves.

DEC now issues discharges permits for cruise ships, as they do for all other dischargers, and the Ocean Ranger program has given Alaskans needed assurance that the State's pollution rules are being followed. The approach adopted by DEC has been measured and appropriate, and affords the cruise industry ample time to comply with regulations that protect Alaska's incomparable marine resources. Given the state's reliance on commercial and sport fishing, subsistence, and the many uses of marine waters for local recreation and tourism, Alaska must protect its coastal waters by preventing the discharge of heavy metals like copper and other substances known to negatively impact salmon and other aquatic resources.

We urge members of the Alaska Legislature not to heed the cries of the Miami-based cruise industry. This luxury industry registers all their ships in foreign ports to avoid U.S. income taxes and labor laws. They should not now ask Alaska for local tax-relief and weaker pollution rules because they fear the US economy and its potential, future impact on their bottom line.

Let's keep Alaska waters clean and continue to appropriate cruise tax revenues for worthy projects that benefit the cruise passengers, the companies and impacted Alaska communities.

Please contact us to discuss any of these issues in more detail. Thank you,

Gershon Cohen Ph.D.

Gershon Cohen Ph.D.
Project Director, CSAW
766-3005 gershon@aptalaska.net

Theodore Thoma

Theodore Thoma
President, RCA
586-2117 chipt@alaska.net

CSAW
Campaign to Safeguard America's Waters



Earth Island Institute

2/17/09

Re: HB 134 Testimony of Gershon Cohen Ph.D.

Dear Chairmen and Members of the Alaska House of Representatives Committee on Community and Regional Affairs,

Thank you for accepting this testimony in opposition to HB134, which seeks to remove the ban on mixing zone authorizations for cruise ship discharges established by majority vote of the people of Alaska in 2006.

The State of Alaska has traditionally been generous in allowing dischargers to circumvent the State's Water Quality Standards (WQS) through the application of mixing zones, which permit polluters to dilute contaminated wastewater within public waters. Nevertheless, the frequency of mixing zone use in the past should not be presumed to indicate that (1) the practice is consistent with the fundamental goals of the Clean Water Act to make all waters fishable and swimmable and eliminate the discharge of pollutants, or (2) such regulatory negligence adequately protects Alaska's aquatic resources.

I agree with the intent of the sponsors of HB134 that discharge permits be based on the best scientific evidence available. By definition, the State's WQS represent the best scientific information regarding the protection of aquatic life. Assigning mixing zones to mobile dischargers such as cruise ships does not represent the best science available, it will create multiple regions in our marine waters which cannot be tested for toxicity, where wastes may or may not disperse well depending upon the location of the discharge due to local currents, tides, salinity, temperature, and/or topography, and will likely contain the waste from multiple ships using the same water for dilution. Worst of all, it will risk contaminating any fish or other marine life unfortunate enough to be within the mixing zone at the time of discharge.

Mixing zones are not based on biological science or toxicology; they are engineering-based risk analyses that assume, or at least hope, that organisms will either not be present when the discharge occurs, not be harvested and consumed, or represent a small enough percentage of the population as to not result in long term harm to the overall ecosystem.

The cruise industry believes it should be given mixing zones because some other dischargers have mixing zones. Poor performance by other dischargers does not

justify allowing the cruise lines to seek the lowest common denominator of waste treatment. It is important to note that many of their "peers" are using equipment designed in the 1950's, built in the 1970's, and perhaps in a few cases marginally improved in more recent years. Many of these communities and private dischargers have not had the financial resources to even begin trying to improve their performance. The cruise industry has recorded billion dollar profits year after year – they can afford to do the job right, and in doing so they will show others how they can improve their performance.

Alaska's WQS not only contain provisions for authorizing mixing zones, they also include an Antidegradation Policy (18AAC70.015) requiring the State to prohibit lowering the quality of a receiving water unless the best possible treatment methods are applied. The cruise industry claims to be using the best treatment methods available, but in fact, the industry has not tested or installed any new equipment on their ships since 2006 to address pollutants such as heavy metals or ammonia even though they have known since the initiative election that State law would eventually require them to either improve their performance, discharge on-shore, or discharge outside of Alaska waters. Rather than invest the time and money necessary to improve their performance they have chosen to spend their resources on lobbyists and lawyers to try and get the law changed. Many of those lobbyists and lawyers are probably sitting in your chambers today.

Regardless of your feelings about the authorization of mixing zones, it cannot be honestly argued that this bill is anything but premature. Tomorrow morning DEC will host a meeting at which scientists and high-tech companies will present their ideas on how cruise ships can meet the WQS without mixing zones. These technologies may not be ready to be installed in the fleet immediately for the simple reason that waste treatment firms have never been asked to build such devices for ships. That does not mean the fundamental science and technology does not exist, or cannot be adapted for ships within a reasonable period of time.

I'm sure you recall that in 2001 we heard the same cry from this industry when Alaska demanded they do a better job of removing fecal bacteria from their wastestreams. They said such performance was impossible. They said no applicable technologies existed. They threatened that imposing the requirement would mean the death of their industry in Alaska and along with it the demise of the Alaska tourism economy. But what was the result of our demand for better treatment? Several companies immediately launched efforts to build better machines for removing solids and bacteria on ships. Today, two thirds of the fleet that comes to Alaska has these improved technologies on board.

There is little doubt that if the cruise lines made the effort to comply with our rules they would succeed. Furthermore, not only has DEC recently initiated a process to identify technologies that have been improved in recent years, DEC has given the industry a pass on meeting the no-mixing zone discharge rules until at least 2010. No fines or penalties have been assessed to this point, and the bill before you today seeks to remove an achievable performance requirement that will not come due for another year at minimum. There is simply no harm whatsoever to this industry in

keeping the present law in place while new and better treatment methods are adapted for ship board use. For these reasons, it is clear that HB134 is premature, and should not move forward at this time.

The authorization of mixing zones is fundamentally illogical. Our oceans are finite and putting more pollutants into our waters must at some point result in deleterious impacts on our fisheries. One would hope we'd have learned this lesson by now, given the result that similar applications of the "dilution-solution" have had on our atmosphere.

I apologize I cannot be here in person to testify today, but I am traveling to Juneau this afternoon to participate in DEC's cruise ship technology conference that begins on Wednesday morning.

Sincerely,



Gershon Cohen PhD, Project Director, CSAW
Co-sponsor, Alaska Cruise Ship Ballot Initiative

HOUSE RESOURCES COMMITTEE

Supplemental Materials



February 10, 2009

The Honorable Bob Herron
House of Representatives
State Capitol Rm 415
Juneau AK 99801-1182

Rob

Dear Representative Herron:

It has come to my attention a letter was recently distributed to the Legislature inaccurately describing the actions and goals of the cruise industry. I am writing to set the record straight.

The cruise industry shares the Department of Environmental Conservation's goal to improve and protect water quality in Alaska. Ever since 2002, Alaska has had the highest standards in the world for large ship wastewater discharges. To meet these standards, the cruise industry has invested over \$200 million to improve onboard processing of wastewater. If you have not seen this impressive technology, I invite you to tour one of our ships this season.

In 2006, the sponsors of Ballot Measure 2 promised Alaskans, the initiative would hold the cruise industry to the same standards as other industries. However, the initiative ties the hands of the environmental regulators. The Initiative prohibits the established scientific practice of measuring the effects of diluted discharges into a body of water. The initiative mandates DEC hold the cruise industry to a much higher standard and one that has not proven to be reasonably obtainable in a marine environment or onboard a cruise ship. It is important to remember that it is not uncommon for a cruise ship to take on municipal drinking water that exceeds the initiative standards and would require processing prior to discharge.

On February 18, the DEC will be holding a workshop with the goal of "producing an inventory and evaluating existing and innovative new control technologies to further reduce and/or remove ammonia and metals from treated waste water effluent of large cruise ships." We support DEC's effort to learn more about existing technologies and our members will be participating in that workshop. Our research departments continue to work with water treatment manufacturers to evaluate new technology. However, DEC's open invitation to manufacturers, engineers, scientists, etc. is a new approach. We will be interested to discover any new emerging technologies.

The identification and evaluation of new technology should be part of a long-term and ongoing process. We are certainly committed to participating with DEC, EPA, local communities, and the environmental organizations in this ongoing process.

I hope you will agree, the DEC's workshop and the long-term effort to study new technology should not be used as a distraction to the very important goals that can be accomplished this legislative session. We have the opportunity to level the playing field and treat the cruise industry the same as other industries by: giving DEC professionals the tools to use science to set their discharge standards; creating a regulatory environment where the industry has the ability to comply based on proven technology; and establishing the rules by this spring prior to deployment decisions for the 2010 cruise season.

Our members look forward to working with you this session to accomplish these goals. I hope you will join us, the Alaska State Chamber of Commerce, the Alaska Municipal League, Southeast Conference and 35 other local communities and organizations in support of these important legislative goals. It is also my hope that the initiative sponsors will focus their efforts on assisting the legislature in their authority to review public policy rather than criticize legislators for acting prematurely.

If you have any questions regarding this letter, I would enjoy the opportunity to discuss these issues further.

Sincerely,



John Binkley
President
ACA



Thank you for taking the time to meet with us.

In 2006, the Alaska voters passed a cruise ship initiative. The area of concern for the cruise ships is the new permit standards that were created.


Since 2002, Alaska has had among the highest standards in the world for waste water discharge from large cruise ships. We acknowledge being held to a higher standard and have invested over \$200 million in the technology to achieve those levels. In May of 2008, ADEC adopted new standards for the final large cruise ship general permit. Not only are these standards far higher than any community in Alaska; the technology to implement them is not commercially available or is impractical for ships. This is despite the promise from initiative sponsors that the initiative would simply "level the playing field."

The initiative language tied the hands of ADEC and does not allow them to set the permit limits based on science. We are asking the legislature to follow the will of the people and "level the playing field," to untie the hands of ADEC and let them do their job.

Attached you will find several documents that we feel make a compelling case to use similar methods of measurement in order to "level the playing field."

Sincerely,

John Binkley
President
ACA




Quote from Gershon Cohen and the Campaign to Safeguard America's Waters issued press release (Alaska Cruise Ship Initiative Certified for 2006 Ballot).

"If passed, the new initiative will level the economic and environmental playing fields between the cruise ship industry and other major dischargers of polluted wastes into Alaska waters."

Quote from Joe Geldhof, Juneau Attorney, co-author of Alaska Cruise Ship Initiative, Skagway News story (Ballot Measure Two, the cruise initiative, raises voices in ship-happy Skagway).

"There's nothing radical on here," said Geldhof, adding that the measure would make the cruise industry adhere to the same pollution standards as fisheries, municipalities, and gas and oil companies. Drafting techniques to adopt the similar basic body of law makes it long. "It's not meant to be long, onerous and punitive."

Quote from an Alaska Department of Environmental Conservation issued press release (State Issues First Discharge Permit for Cruise Ships in Alaska).



"The majority of large cruise ships operating in Alaska have advanced wastewater treatment systems that produce a very high quality discharge – much higher, for example, than shore-based municipal sewage treatment systems."

"The department has determined that as long as ships comply with the interim effluent limits there will be no impacts on water resources or aquatic life."

Comparable EPA NPDES Discharge Permits in Alaska and Associated Effluent Limits

The following table compares the effluent guidelines in the ADEC General Cruise Ship Permit with effluent limitations within existing wastewater discharge permit limits in Alaska. Analytical data from the EPA cruise ship sampling project is compared with minimum permitted levels for land-based plants within typical large cruise ship itineraries and various other communities in Alaska. For cases where land-based permits indicated analysis for total recoverable metals, these limits were compared to cruise ship dissolved metals concentrations. For land-based permits that include variable effluent limitations based on monthly averages, weekly averages, or daily maximums, the most stringent level was chosen. The synopsis indicates that the final 2010 effluent limitations of the ADEC General Cruise Ship permit are stricter than the limits in the permits of any land-based municipal treatment plants in Alaska.

2002				2006				
	Fecal Coliform (fc/100 ml)	BOD (mg/L)	TSS (mg/L)	Diss Copper (ug/L)	Diss Nickel (ug/L)	Diss Zinc (ug/L)	Total Ammonia (ug/L)	
Cruise Ship Permit (interim)	14	30	30	66	180	230	80.4	Interim Levels
Cruise Ship Permit (2010 final)	14	30	30	3.1	8.2	81	2.9	2010 Initiative Limits
Anchorage	850	240	170					
Eagle River	100	30	30	175			36	
Fairbanks	200	30	30					
Girdwood	100	30	30	57				
Haines	1,000,000	140	140	156				
Juneau Douglas	400	30	30					
Juneau Mendenhall	161	30	30	95.8			48.0	
Kenai	200	30	30					
Kennecott Greens Creek mine	7,000	30	20	300		1000		
Ketchikan	1,000,000	146	129	290		9384	43	
Palmer	20	30	30				18.5	
Seward	50,000	30	30					
Sitka	1,000,000	140	140	354				
Skagway	1,000,000	80	70	210				
Soldotna	100	30	30					

Comparison of Effluent Volumes between Land-based Municipal Treatment Plants and Cruise Ships

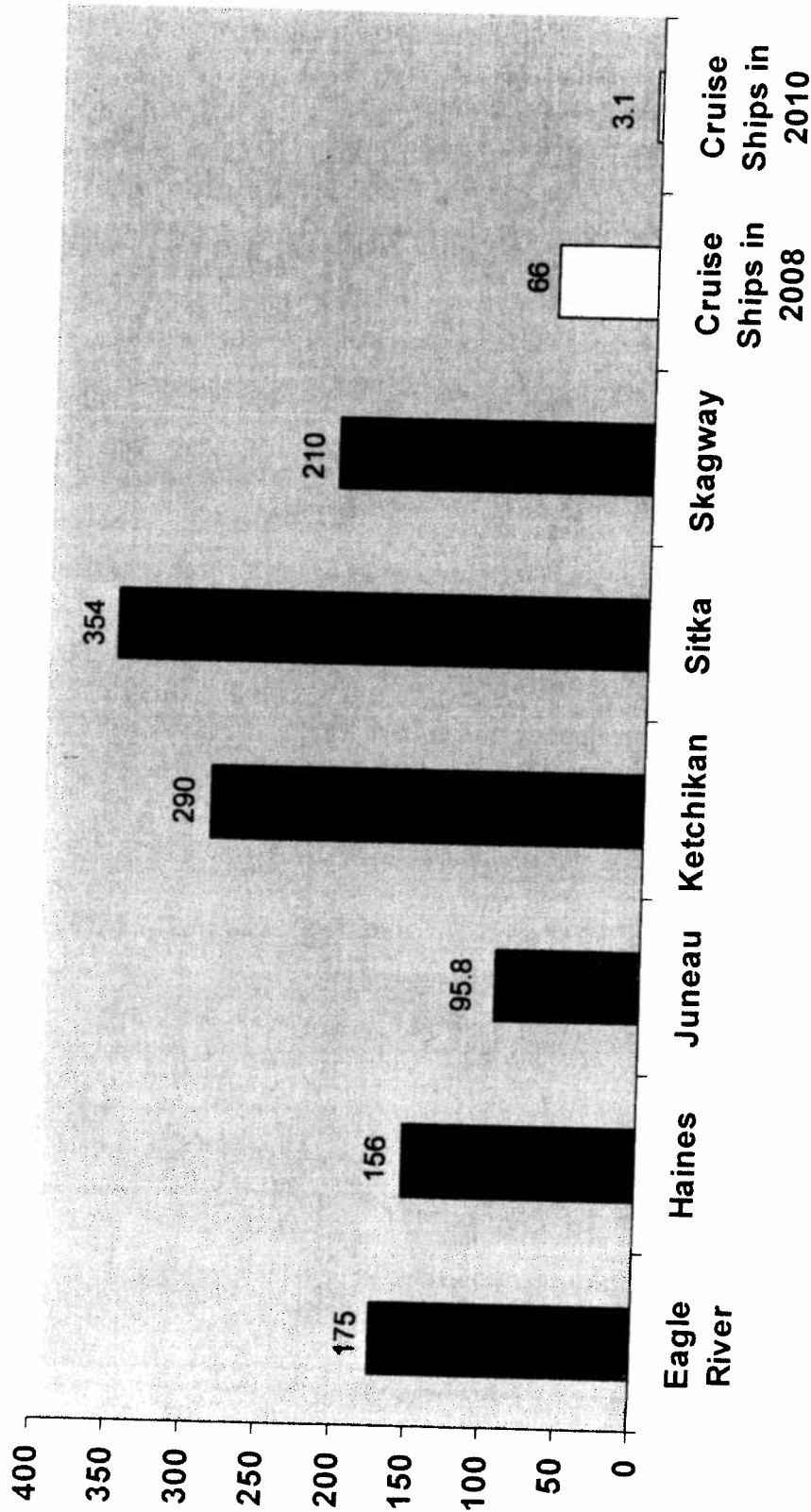
The average volume of discharge from a cruise ship was also compared to the average discharge volume of each land-based plant in order to evaluate the cumulative effects of cruise ship discharges within Alaska waters. Advanced wastewater systems on cruise ships operate efficiently and generally produce a small volume of treated effluent compared to land based plants. The following chart lists the permitted effluent for Alaska land-based treatment plants, and the equivalent number of cruise ships required to match the volume of daily effluent in each community.

	Permitted daily discharge in gallons	Equivalent number of large cruise ships to equal one day of each city's permitted waste water discharge
Average Cruise Ship Daily Discharge	143,600	1
Anchorage	36,000,000	251
Eagle River	2,500,000	17
Girdwood	600,000	4
Haines	1,900,000	13
Juneau Douglas/Mendenhall	7,660,000	53
Kenai	1,330,000	9
Kennecott Greens Creek mine	2,390,000	17
Ketchikan	4,000,000	28
Palmer	950,000	7
Seward	900,000	6
Sitka	1,800,000	13
Skagway	630,000	4
Soldotna	1,080,000	8

For average cruise ship effluents, 2004 EPA cruise ship study data, available at http://www.epa.gov/owow/oceans/cruise_ships/results.html

For effluent values for communities, individual EPA permits, located at <http://yosemite.epa.gov/R10/water.nsf/NPDES-Permits/Permits.Homepage>

Copper Limits for Community Discharge Permits vs. Cruise Ship Permit Limits



Max Daily Permit Limits in Parts Per Billion (ppb)



— HOUSE RESOURCES COMMITTEE —
Supplemental Materials



LAWS OF ALASKA

2006

Source
Ballot Measure No. 2

AN INITIATIVE

Providing for taxation of certain commercial ship vessels, pertaining to certain vessel activities, and related to ship vessel operations taking place in the marine waters of the State of Alaska; and providing for an effective date.

BE IT ENACTED BY THE PEOPLE OF THE STATE OF ALASKA:

THE INITIATIVE FOLLOWS ON PAGE 1

Date Election Results Certified: September 18, 2006
Actual Effective Date: December 17, 2006

AN INITIATIVE

1 Providing for taxation of certain commercial ship vessels, pertaining to certain vessel
2 activities, and related to ship vessel operations taking place in the marine waters of the State
3 of Alaska; and providing for an effective date.

4

5 * Section 1. AS 43 is amended by adding a new chapter to read:

6 Chapter 52. Excise Tax on Travel Aboard Commercial Passenger Vessels.

7 Sec. 43.52.010. Levy of excise tax on overnight accommodations on
8 commercial passenger vessels. There is imposed an excise tax on travel on
9 commercial passenger vessels providing overnight accommodations in the state's
10 marine water.

11 Sec. 43.52.020. Rate of tax. The tax imposed by AS 43.52.010 - 43.52.095 is
12 levied at a rate of \$46 a passenger per voyage.

13 Sec. 43.52.030. Liability for payment of tax. A passenger traveling on a
14 commercial passenger vessel providing overnight accommodations in state marine

1 water is liable for the tax imposed by AS 43.52.010 - 43.52.095. The tax shall be
2 collected and is due and payable to the department

3 (1) by the person who provides travel aboard a commercial vessel for
4 which the tax is payable; and

5 (2) in the manner and at the times required by the department by
6 regulation.

7 **Sec. 43.52.040. Disposition of receipts.** (a) The proceeds from the tax on
8 travel on commercial passenger vessels providing overnight accommodations in the
9 state's marine water shall be deposited in a special "commercial vessel passenger tax
10 account" in the general fund. The legislature may appropriate money from this account
11 for the purposes described in (b) and (c) of this section, for state-owned port and
12 harbor facilities, other services to properly provide for vessel or watercraft visits, to
13 enhance the safety and efficiency of interstate and foreign commerce, and such other
14 lawful purposes as determined by the legislature.

15 (b) For each voyage of a commercial passenger vessel providing overnight
16 accommodations, the commissioner shall identify the first five ports of call in the state
17 and the number of passengers on board the vessel at each port of call. Subject to
18 appropriation by the legislature, the commissioner shall distribute to each port of call
19 \$5 per passenger of the tax revenue collected from the tax levied under this chapter. If
20 the port of call is a city located within a borough not otherwise unified with the
21 borough, the commissioner shall, subject to appropriation by the legislature, distribute
22 \$2.50 per passenger to the city and \$2.50 to the borough. Each port of call receiving
23 funds under this section shall use the funds in a manner calculated to improve port and
24 harbor facilities and other services to properly provide for vessel or watercraft visits
25 and to enhance the safety and efficiency of interstate and foreign commerce.

26 (c) A "regional cruise ship impact fund" consisting of 25 percent of the
27 proceeds from the tax on travel aboard commercial passenger vessels providing
28 overnight accommodations in the state's marine water shall be established as sub-
29 account of the funds established in (a) of this section and deposited in the general
30 fund. Subject to appropriation by the legislature and regulations adopted by the
31 Department of Revenue, the commissioner shall distribute funds to municipalities or

1 other governmental entities within the Prince William Sound Region, Southeast
2 Alaska, or any other distinctive region impacted by cruise ship related tourism
3 activities but not entitled to receive funds based on port of call visitation as allowed by
4 (b) of this section, provided that any funds used from this account shall be used to
5 provide services and infrastructure directly related to passenger vessel or watercraft
6 visits or to enhance the safety and efficiency of interstate and foreign commerce
7 related to vessel or watercraft activities.

8 **Sec. 43.52.050. Administration.** (a) The department shall

9 (1) administer this chapter; and

10 (2) collect, supervise, and enforce the collection of taxes due under this
11 chapter and penalties as provided in AS 43.05.

12 (b) The department may adopt regulations necessary for the administration of
13 this chapter.

14 **Sec. 43.52.060. Local levies.** Any municipality, whether home rule or general
15 law, that receives passenger ship fee funds under this chapter may not impose an
16 additional form of tax on travel on commercial passenger vessels engaged in activities
17 involving overnight accommodations for passengers in state marine waters. Any form
18 of tax on travel on commercial passenger vessels engaged in activities involving
19 overnight accommodations for passengers in state marine waters enacted by a
20 municipality, whether home rule or general law, prior to the effective date of this
21 section shall expire one year after enactment of this law if that municipality elects to
22 receive funds under this chapter.

23 **Sec. 43.52.095. Definitions.** In this chapter,

24 (1) "commercial passenger vessel" means a boat or vessel that is used
25 in the common carriage of passengers in commerce; "commercial passenger vessel"
26 does not include

27 (A) vessels with fewer than 250 berths or other overnight
28 accommodations for passengers;

29 (B) noncommercial vessels, warships, and vessels operated by
30 the state, the United States, or a foreign government;

31 (2) "marine water of the state" and "state marine water" have the

1 meaning given to "waters" in AS 46.03.900, except that they include only marine
2 waters;

3 (3) "passenger" means a person whom a common carrier has
4 contracted to carry from one place to another;

5 (4) "voyage" means any trip or itinerary lasting more than 72 hours.

6 * Sec. 2. AS 05 is amended by adding a new chapter to read:

7 **Chapter 16. Games of Chance and Contests of Skill on Ships Operating on Waters**
8 **within the Jurisdiction of Alaska.**

9 **Sec. 05.16.010. Gambling activities aboard commercial vessels**
10 **purportedly authorized by federal law.** This chapter applies to the use of playing
11 cards, dice, roulette wheels, coin-operated instruments or machines, or other objects or
12 instruments used, designed, or intended for gaming or gambling used in the waters
13 under the jurisdiction of the State of Alaska on a voyage described in 15 U.S.C.
14 1175(c)(2), and to any other gambling activities taking place aboard large passenger
15 vessels in the state.

16 **Sec. 05.16.020. Tax on gambling activities authorized by AS 05.16.010.**
17 There is imposed on the operator of a gaming or gambling activities aboard large
18 passenger vessels in the state a tax of 33 percent of the adjusted gross income from
19 those activities. "Adjusted gross income" means gross income less prizes awarded and
20 federal and municipal taxes paid or owed on the income. The tax shall be collected
21 and is due and payable to the Department of Revenue in the manner and at the times
22 required by the Department of Revenue.

23 **Sec. 05.16.030. Disposition of receipts.** The proceeds from the tax on
24 gambling operations aboard commercial passenger vessels in the state's marine water
25 shall be deposited in a special "commercial vessel passenger tax account" in the
26 general fund.

27 * Sec. 3. AS 43.20.021 is repealed and reenacted to read:

28 **Sec. 43.20.021(a). Internal Revenue Code adopted by reference.** (a)
29 Sections 26 U.S.C. - 1399 and 6001 - 7872 (Internal Revenue Code), as amended, are
30 adopted by reference as a part of this chapter. These portions of the Internal Revenue
31 Code have full force and effect under this chapter unless excepted to or modified by

1 other provisions of this chapter.

2 (b) Nothing in this chapter or in AS 43.19 (Multistate Tax Compact) may be
3 construed as an exception to or modification of 26 U.S.C. 883.

4 (c) The provision in (b) of this section does not apply to commercial passenger
5 vessels as defined in AS 43.52.095.

6 * Sec. 4. AS 46.03.462 is repealed and reenacted to read:

7 **Sec. 46.03.462. Terms and conditions of discharge permits.** (a) An owner or
8 operator may not discharge any treated sewage, graywater, or other wastewater from a
9 large commercial passenger vessel into the marine waters of the state unless the owner
10 or operator obtains a permit under AS 46.03.100, which shall comply with the terms
11 and conditions of vessel discharge requirements specified in (b) of this section.

12 (b) The minimum standard terms and conditions for all discharge permits
13 authorized under this provision require that the owner or operator

14 (1) may not discharge untreated sewage, treated sewage, graywater, or
15 other wastewaters in a manner that violates any applicable effluent limits or standards
16 under state or federal law, including Alaska Water Quality Standards governing
17 pollution at the point of discharge;

18 (2) shall maintain records and provide the reports required under
19 AS 46.03.465(a);

20 (3) shall collect and test samples as required under AS 46.03.465(b)
21 and (d) and provide the reports with respect those samples required by
22 AS 46.03.475(c);

23 (4) shall report discharges in accordance with AS 46.03.475(a);

24 (5) shall allow the department access to the vessel at the time samples
25 are taken under AS 46.03.465 for purposes of taking the samples or for purposes of
26 verifying the integrity of the sampling process; and

27 (6) shall submit records, notices, and reports to the department in
28 accordance with AS 46.03.475(b), (d), and (e).

29 * Sec. 5. AS 46.03.463 is amended to read as follows:

30 **Sec. 46.03.463(d)** is repealed.

31 **Sec. 46.03.463(e)** is repealed and reenacted to read: An owner or operator may

1 not discharge any treated sewage, graywater, or other wastewater from a large
2 commercial passenger vessel into the marine waters of the state unless the owner or
3 operator obtains a permit under AS 46.03.100 and 46.03.462, and provided that the
4 vessel is not in an area where the discharge of treated sewage, graywater, or other
5 wastewaters is otherwise prohibited.

6 Sec. 46.03.463(g) is repealed.

7 * Sec. 6. AS 46.03.465 is repealed and reenacted to read:

8 Sec. 46.03.465. **Information-gathering requirements.** (a) The owner or
9 operator of a commercial passenger vessel shall maintain daily records related to the
10 period of operation while in the state, detailing the dates, times, and locations, and the
11 volumes and flow rates of any discharges of sewage, graywater, or other waste into
12 the marine waters of the state, provide electronic copies of such records on a monthly
13 basis to the department no later than five days after each calendar month of operation
14 in state waters.

15 (b) While a commercial passenger vessel is present in the marine waters of the
16 state, the owner or operator of the vessel shall provide an hourly report of the vessel's
17 location based on Global Positioning System technology and collect routine samples
18 of the vessel's treated sewage, graywater, and other wastewaters being discharged into
19 marine waters of the state with a sampling technique approved by the department.

20 (c) While a commercial passenger vessel is present in the marine waters of the
21 state, the department, or an independent contractor retained by the department, may
22 collect additional samples of the vessel's treated sewage, graywater, and other
23 wastewaters being discharged into the marine waters of the state.

24 (d) The owner or operator of a vessel required to collect samples under (b) of
25 this section shall ensure that all sampling techniques and frequency of sampling events
26 are approved by the department in a manner sufficient to ensure demonstration of
27 compliance with all discharge requirements under AS 46.03.462.

28 (e) The owner or operator of a commercial passenger vessel shall pay for all
29 reporting, sampling, and testing of samples under this section.

30 (f) If the owner or operator of a commercial passenger vessel has, when
31 complying with another state or federal law that requires substantially equivalent

1 information required under (a), (b), or (d) of this section, the owner or operator shall
2 be considered to be in compliance with that subsection so long as the information is
3 also provided to the department.

4 * Sec. 7. AS 46.03 is amended by adding new sections to read:

5 **Sec. 46.03.476. Ocean Rangers.** (a) An owner or operator of a large
6 commercial passenger vessel entering the marine waters of the state is required to have
7 a marine engineer licensed by the United States Coast Guard hired or retained by the
8 department on board the vessel to act as an independent observer for the purpose of
9 monitoring state and federal requirements pertaining to marine discharge and pollution
10 requirements and to insure that passengers, crew, and residents at ports are protected
11 from improper sanitation, health, and safety practices.

12 (b) The licensed marine engineer shall monitor, observe, and record data and
13 information related to the engineering, sanitation, and health related operations of the
14 vessel, including but not limited to registration, reporting, record-keeping, and
15 discharge functions required by state and federal law.

16 (c) Any information recorded or gathered by the licensed marine engineer
17 shall be promptly conveyed to the Alaska Department of Environmental Conservation
18 and the United States Coast Guard on a form or in a manner approved by the
19 commissioner of environmental conservation. The commissioner may share
20 information gathered with other state and federal agencies.

21 **Sec. 46.03.481. Citizens' suits.** (a) Any citizen of the State of Alaska may
22 commence a civil action (1) against an owner or operator of a large passenger vessel
23 alleged to have violated any provision of this chapter, or (2) against the department
24 where there is an alleged failure to perform any act or duty under this chapter which is
25 not discretionary. No civil action may be commenced under this section, however,
26 prior to 45 days after the plaintiff has provided written notice of the intent to sue to the
27 Attorney General of Alaska.

28 (b) Subject to appropriation, as necessary, up to 50 percent and not less than
29 25 percent of any fines, penalties, or other funds recovered as a result of enforcement
30 of this chapter shall be paid to the person or entity, other than the defendant, providing
31 information sufficient to commence an investigation and enforcement of this chapter

1 under this provision.

2 * Sec. 8. AS 46.03.480 is amended as follows:

3 Sec. 46.03.480 is amended by adding a new subsection to read:

4 (d) An additional fee in the amount of \$4 per berth, is imposed on all large
5 commercial passenger vessels, other than vessels operated by the state, for the purpose
6 of operating the Ocean Ranger program established in AS 46.03.476; said program
7 shall be subject to legislative appropriation.

8 Sec. 46.03.480(d) shall be repealed and reenacted as AS 46.03.480(e).

9 * Sec. 9. AS 46.03.760 is amended as follows:

10 Sec. 46.03.760 is amended by adding a new subsection to read:

11 (f) An owner, agent, employee, or operator of a commercial passenger vessel,
12 as defined in AS 43.52.095, who falsifies a registration or report required by
13 AS 46.03.460 or 46.03.475 or who violates or causes or permits to be violated a
14 provision of AS 46.03.250 - 46.03.314, 46.03.460 - 46.03.490, AS 46.14, or a
15 regulation, a lawful order of the department, or a permit, approval, or acceptance, or
16 term or condition of a permit, approval, or acceptance issued under AS 46.03.250 -
17 46.03.314, 46.03.460 - 46.03.490, or AS 46.14 is liable, in a civil action, to the state
18 for a sum to be assessed by the court of not less than \$5,000 nor more than \$100,000
19 for the initial violation, nor more than \$10,000 for each day after that on which the
20 violation continues, and that shall reflect, when applicable,

21 (1) reasonable compensation in the nature of liquidated damages for
22 any adverse environmental effects caused by the violation, that shall be determined by
23 the court according to the toxicity, degradability, and dispersal characteristics of the
24 substance discharged, the sensitivity of the receiving environment, and the degree to
25 which the discharge degrades existing environmental quality; for a violation relating to
26 AS 46.14, the court, in making its determination under this paragraph, shall also
27 consider the degree to which the discharge causes harm to persons or property; this
28 paragraph may not be construed to limit the right of parties other than the state to
29 recover for personal injuries or damage to their property;

30 (2) reasonable costs incurred by the state in detection, investigation,
31 and attempted correction of the violation;

1 (3) the economic savings realized by the person in not complying with
2 the requirement for which a violation is charged; and

3 (4) the need for an enhanced civil penalty to deter future
4 noncompliance.

5 Sec. 46.03.760(f) shall be repealed and reenacted as AS 46.03.760(g).

6 * Sec. 10. AS 45.50.474 is repealed and reenacted to read:

7 Sec. 45.50.474. Required disclosures in promotions and shoreside sales on
8 board cruise ships. (a) A person may not conduct a promotion on board a cruise ship
9 that mentions or features a business in a state port that has paid something of value for
10 the purpose of having the business mentioned, featured, or otherwise promoted, unless
11 the person conducting the promotion clearly and fully discloses orally and in all
12 written materials used in the promotion that the featured businesses have paid to be
13 included in the promotion. All such written notice of disclosure shall be in a type not
14 less than 14-point typeface and in a contrasting color calculated to draw attention to
15 the disclosure.

16 (b) A person or other entity aboard a cruise ship conducting or making a sale
17 of tours, flightseeing operations, or other shoreside activities to be delivered by a
18 vendor or other entity at a future port of call shall disclose, both orally and in writing,
19 the amount of commission or percentage of the total sale retained or returned to the
20 person making the sale. The person or entity aboard a cruise ship making or
21 attempting to make a sale of services or goods provided by a shoreside vendor shall
22 disclose the address and telephone number of the shoreside vendor if asked by a
23 consumer. All such written notice of disclosure shall be in a type not less than 14-
24 point typeface and in a contrasting color calculated to draw attention to the disclosure.

25 (c) Each violation of this section constitutes an unfair trade practice under
26 AS 45.50.471, and shall result in a penalty of not more than \$100 for each violation. In
27 this section, "cruise ship" means a ship that operates at least 48 hours in length for
28 ticketed passengers, provides overnight accommodations and meals for at least 250
29 passengers, is operated by an authorized cruise ship operator, and is certified under the
30 International Convention for the Safety of Life at Sea or otherwise certified by the
31 United States Coast Guard.

1 * Sec. 11. The uncodified law of the State of Alaska is amended by adding a new section to
2 read:

3 SEVERABILITY. It is the intention of the people of Alaska that any portion of this
4 legislation that is declared unlawful shall be stricken in a manner that preserves the remaining
5 portion of the remaining legislation to the maximum extent possible.

6 * Sec. 12. EFFECTIVE DATE. This Act takes effect 90 days after enactment.

The Alaska Statutes – 2006

Sec. 46.03.462. Terms and conditions of discharge permits.

(a) An owner or operator may not discharge any treated sewage, graywater, or other wastewater from a large commercial passenger vessel into the marine waters of the state unless the owner or operator obtains a permit under AS 46.03.100, which shall comply with the terms and conditions of vessel discharge requirements specified in (b) of this section.

(b) The minimum standard terms and conditions for all discharge permits authorized under this section require that the owner or operator

(1) may not discharge untreated sewage, treated sewage, graywater, or other wastewaters in a manner that violates any applicable effluent limits or standards under state or federal law, including Alaska Water Quality Standards governing pollution at the point of discharge;

(2) shall maintain records and provide the reports required under AS 46.03.465(a);

(3) shall collect and test samples as required under AS 46.03.465 (b) and (d) and provide the reports with respect those samples required by AS 46.03.475 (c);

(4) shall report discharges in accordance with AS 46.03.475 (a);

(5) shall allow the department access to the vessel at the time samples are taken under AS 46.03.465 for purposes of taking the samples or for purposes of verifying the integrity of the sampling process; and

(6) shall submit records, notices, and reports to the department in accordance with AS 46.03.475 (b), (d), and (e).

HOUSE RESOURCES COMMITTEE

Supplemental Materials

FEASIBILITY STUDY:
**REDUCING CONCENTRATIONS OF DISSOLVED
METALS AND AMMONIA IN LARGE PASSENGER
VESSEL WASTEWATER DISCHARGES**

DRAFT
February 16, 2009

Prepared for:



**Alaska Department of Environmental Conservation
Cruise Ship Program**

Prepared by:



oasis

ENVIRONMENTAL

CONSULTING • ANALYSIS • DESIGN • IMPLEMENTATION • MONITORING

825 W. 8th Ave.
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AND SUB-CONTRACTOR TEAM

EXECUTIVE SUMMARY

ADEC issued the Large Commercial Passenger Vessel Wastewater Discharge General Permit in March 2008 to meet the requirement of Alaska Statute 46.03.462. ADEC analysis indicated that cruise ships could not immediately comply with the statute's strict "point of discharge" effluent limits in the General Permit for ammonia, copper, nickel, and zinc. Therefore, the permit contains interim effluent limits that are less stringent for the 2008 and 2009 cruise ship seasons. The permit contains long term effluent limits for these parameters based upon the water quality standards that must be met by the 2010 cruise ship season.

An analysis of this 2008 data reveals that under current operational practices, the existing wastewater treatment systems installed on large cruise ships cannot consistently treat wastewater to the long term effluent limits.

Although it is the cruise ships' responsibility to comply with the terms of the General Permit, it is important for ADEC to be knowledgeable about the types of technology that may exist to enable cruise ships to meet the long term effluent limits. Therefore, ADEC hired the OASIS team to evaluate successful shore-based technologies as well as new and emerging technologies that could potentially be adapted for use on cruise ships. In this first public draft of the study, the OASIS team evaluates nine current technologies that may be able to reduce concentrations of the four pollutants of concern: ammonia, dissolved copper, dissolved nickel and dissolved zinc. It also includes five experimental technologies. Of the nine current technologies, three treat all four pollutants, three treat only ammonia and three treat only dissolved metals.

The information on these technologies comes from a variety of research sources and also from manufacturers, vendors, and researchers. A solicitation to these groups was accomplished by direct e-mailing and through e-mail blasts to the wastewater industry and the maritime industry. Approximately 60 interested parties were in contact. A total of 10 contacts submitted white papers describing potential solutions for meeting the new limits.

In order to make conclusive determinations about whether achieving the proposed limits by 2010 is possible, more information is needed such as detailed waste stream characterization and analysis, treatability studies, potential pilot plants, and conceptual designs for ship adaptation. However, this draft study finds that technologies exist in land-based applications that appear to be able to treat the pollutants (ammonia, nickel, copper or zinc) to the necessary levels for discharge. These technologies include ion exchange, reverse osmosis, electrodialysis, chemical precipitation, air/steam stripping, aerobic biological oxidation / nitrification and breakpoint chlorination.

Although land-based technologies exist that can reduce the pollutants to the long term permit limits, further investigation by the cruise lines will be required to determine whether the technologies evaluated in this draft study will be able to be adapted for use on board cruise ships. Ship space, inclination, and other constraints must be considered,

as well as investigating what technological processes will provide the most efficient system by evaluating the system balance, operational costs, and other parameters.

This draft study found that technologies currently used in some manner on ships such as reverse osmosis (RO) and aerobic biological oxidation/nitrification (MBR) would likely provide the most adaptable systems to achieve the limits. RO would be able to treat both ammonia and metals while MBR would only treat ammonia. It is possible that ion exchange, combinations of ion exchange and RO, and electrodialysis could meet the limits for both ammonia and metals and have good potential for being adapted for on-board use. The vendor-submitted white papers suggest that chemical precipitation, ion exchange, reverse osmosis, electrodialysis and breakpoint chlorination may also be able to treat cruise ship wastewater to the permit levels for discharge.

Each of these technologies would be used in conjunction with current systems and would require a significant amount of design and retrofitting for sizing along with marine regulatory approval. It is likely that a full system approach would be needed to coordinate multiple technologies at multiple stages of the water and wastewater flow.

DRAFT