Earth Island Institute

Campaign to Safeguard America's Waters (C-SAW)

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Testimony of Gershon Cohen, Ph.D., on Cruise Ship Pollution Regulatory Issues; Submitted to the National Association of Attorneys General Conference, Ft. Lauderdale, Florida, November, 2000

Thank you for this opportunity to share my thoughts and concerns on the current laws, policies and practices related to the discharge of polluted wastestreams from cruise ships. I support the attention you are directing towards this issue and the role you could potentially play in its resolution.

Regulating the activities of any major industry is a complex undertaking. Administering cruise ship discharges will prove to be no exception. The multitude of discharge points available on each ship, the daily variation in quality and quantity of the wastestreams, the number of cruise ship corporations, the range in age, condition, and equipment of the vessels, the influence of the attitudes and training levels of individual operators and companies – all serve to complicate the effort. The matter will be further challenged by the mobile nature of the discharges, as well as the variability of receiving water quality and beneficial uses to be protected. Nevertheless, the importance of preventing the deterioration of our marine resources necessitates that regulatory agencies move promptly to adopt clear and precise rules to protect the public's health and welfare, and ensure the long-term vitality and productivity of our nation's waters.

Despite the statutory prohibition provided in §301 of the Clean Water Act against the discharge of wastes without a permit into public waters, and the fact that §402 permits are applied to virtually all other major industrial and municipal dischargers, the federal government has exempted significant discharges from the cruise ship industry from federal permitting since the 1970's. In particular, millions of gallons of graywater, the wastewater collected from the ship's galley, baths, sinks, and laundry, are released without control or oversight by the average cruise ship every week, on the basis of a regulatory exclusion found at 40 CFR 122.3(a), which, contrary to the Clean Water Act, purports to exempt discharges "incidental to the normal operation of a vessel" from requiring NPDES permits. Exempting cruise vessel graywater discharges from NPDES permitting is questionable since the generation of most cruise ship graywater results from profit making activities not incidental to the normal operation of the vessel. The recent EPA white paper on cruise ship discharges recommended a reassessment of the regulation's application, given that the current regulatory framework may not have anticipated the volume or nature of the graywater discharges released by this industry:

> The NPDES vessel exclusion was premised on the assumption that vessel discharges, including gray water, were minor sources of pollutants as compared to other dischargers. (*Cruise Ship White Paper*, August 22, 2000, EPA, p.14)

Some states having established statutory authority that could likely be used to regulate cruise ship wastewater discharges outside of the NPDES program have also allowed graywater wastestreams to remain unregulated. Alaskan statutes describing the authority and responsibilities of the Alaska Department of Conservation (ADEC) state:

> Sec. 46.03.100. Waste disposal permit. (a) A person who conducts an operation that results in the disposal of solid or liquid waste material…into the waters…of the state shall procure a permit from the department before disposing of the waste material or water.

The procedure for obtaining such a waste disposal permit is described in §46.03.110, which requires an applicant to submit an application for such a permit at least 60 days prior to the commencement of the proposed discharge. While the federal regulation cited earlier purports to exempt cruise ships from NPDES permit requirements, it does not explicitly exempt the industry from obtaining waste disposal permits otherwise required by the State of Alaska.

Industry representatives have told us time and again that a full reporting and monitoring system is unnecessary; the ships are so clean, so well operated, and the discharges so benign a permitting program would simply waste time and money. In an attempt to prove this point, and to perhaps relieve the growing political pressure for formal regulatory action under the Clean Water Act, the industry agreed to a voluntary monitoring program in Alaska this past summer under the auspices of the "Alaska Cruise Ship Initiative" (ACSI) Wastewater Subcommittee. (The committee, of which I am a member, is co-chaired by ADEC and the Coast Guard, and includes participants from the EPA, the public sector, and the industry.) Because of the program's voluntary nature, the industry played the dominant role in its design and implementation. While not comprehensive or statistically valuable, the sampling did provide some baseline information on cruise vessel discharges. It was not, however, capable of satisfying the current information and regulatory gap for the following reasons:

1. Wastestream volumes were not determined.
2. Wastestream constituents were not sufficiently characterized.
3. No toxicity testing was performed.
4. The program did not provide for mass balance accounting to track the use and disposal of toxic materials.
5. The sampling regime was not statistically significant; only two conventional-pollutant sampling actions were performed per ship for the entire Alaska cruise season.
6. Testing for priority pollutants was inadequate; only one screening from a composite sample was performed on each ship, which may have masked the presence of priority pollutants.
7. The program did not establish an adequate public information process for the results of the sampling. Ship names were not to be revealed unless federal criteria were exceeded, but since the ships operate without permits or effluent limits it could be argued that no federal criteria were actually being applied and therefore none were exceeded – requiring no disclosure of specific ship performance records.
8. The program did not help establish best management practices for the industry as a whole, nor provide information that could lead to the development of best available technology requirements or new source performance standards.

Final interpretations of the ACSI sampling results are pending, but even given the programs limitations it is now indisputable that discharges from cruise ships are heavily contaminated with a variety of pollutants. High levels of conventional pollutants such as fecal coliform bacteria, biological oxygen demand (BOD) and total suspended solids were found on every ship tested and in nearly every wastestream. Many samples registered fecal coliform counts in the tens of millions, compared to a federal maximum criterion of 200 colonies per sample. Several ships tested positively for a number of priority pollutants, for example, heavy metals, phenols and plastics. The most disturbing revelation was that unregulated graywater discharges resulted in some of the highest scores of all samples taken. To date there are no adequate explanations for this level of contamination.

Clearly, the industry's assurances prior to sampling that the blackwater and graywater discharges would be consistent with state and federal water quality criteria were without merit. The industry's public

characterization of its pollution treatment systems as efficient and reliable was equally inaccurate. While I believe the industry may have been as shocked as the public and the Coast Guard at the poor performance of the ship's sewage treatment systems, the fact remains that onboard treatment systems were virtually non-functional in a majority of the fleet due to poor maintenance, improper operation, and the overwhelming volume of the sewage collected.

No longer able to claim their discharges were free from contamination, representatives of the industry shifted their argument in support of the regulatory status quo, on the basis of receiving water assimilative capacity, i.e., mixing zones. According to an industry-sponsored modeling study of a generic cruise ship with generic wastestreams, ample capacity exists for dilution of cruise ship wastes as long as certain minimal cruising speeds are achieved while dumping. A follow up study, also commissioned by the industry without the benefit of peer review, claims to have demonstrated that samples taken from somewhere in the wake of the ship confirmed the previous modeling exercise. While it is true that many dischargers of pollutants into public waters enjoy relaxed water quality based effluent limits calculated with dilution factors, there are a number of reasons why this approach should be denied in this circumstance.

First, it will be extremely difficult to limit the entry of unwanted contaminants into the graywater or blackwater discharges of a cruise ship, given the transient and unpredictable nature of the passengers and crew and the range of onboard activities, as compared to the known effluent of a factory constructed to produce a particular product via some established process. Second, while the mobility of a cruise ship would seem to offer the opportunity for greater dilution volumes, this mobility would make it impossible to verify that the modeled dilution is taking place or to measure impacts to biota. Third, appropriate values for the dilution capacity of the receiving water would require constant adjustment to account for numerous variables: depth, speed, tidal action, currents, potential for stratification by temperature and salinity, proximity to shorelines, etc. In addition, receiving waters vary in their need for protection depending upon their designated uses as recreational areas, fishing grounds, or marine mammal habitat, which would require the application of different water quality criteria. Incorporating all of these variables simultaneously would be next to impossible. Fourth, all land-based mixing zones are configured with prior knowledge of the receiving water and upstream contributions of contaminants. Mobile mixing zones could contribute to pollutant loading in a specific waterbody that would exceed the assimilative capacity of the water due to other sources of pollutants, resulting in an impairment of some otherwise protected beneficial use. Fifth, the mixing zone would have to account for the additive and synergistic effects of the individual effluents and their unique constituents. Finally, with 22 ships currently plying the same narrow waterways in S.E. Alaska five months out of the year, their individual mixing zones would often overlap; again defeating the accuracy of any dilution predictions since the same water could be counted as available for dilution by more than one ship. In summary, the use of mixing zones is questionable under the best of circumstances due to the difficulties of predicting the behavior of effluents in the receiving water and their effects on biota. Mixing zones for multiple mobile discharges with variable effluents in non-static receiving waters would be significantly more problematic.

It is ironic that members of the industry wish to obtain relief from human health and aquatic life standards on the basis of their ability to dilute their wastestreams. Mixing zones are authorized in the context of federal and/or state discharge permits; the same permits for which we have advocated for nearly 18 months, and that the industry has worked to avoid. The permitting process for assigning mixing zones normally includes a public comment period on appropriateness, an analysis of treatment alternatives, a survey of the proposed location for impacts to beneficial uses, and the compilation of baseline data on the ecology of the impacted region. If individual members of the industry would agree to apply for an NPDES permit that would initiate this analysis, they would earn the option to apply for a mixing zone like other dischargers.

It is worth noting that the legality of mixing zones is itself a matter of some debate. The first paragraph of the CWA states in part:

> …(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated… (33U.S.C.A. §1251(a)(1))

Eliminated, not diluted. Congress recognized the finite quality of our waters in 1972 when it passed the CWA – dilution was no longer the solution to pollution. Considering the difficulties that would be encountered in designing mixing zones for cruise ships, and the fact that some companies are already moving towards the implementation of superior treatment technologies such as reverse osmosis that we are told would eliminate the need for mixing zones, we should require all vessels to meet all applicable water quality standards at the point of discharge.

In conclusion, given the lack of regulatory oversight currently enjoyed by the cruise ship industry, the industry's record of noncompliance with environmental laws, and the evidence suggesting that significant potential exists for degradation of the public's marine resources, I respectfully offer the following recommendations:

1. Establish a permitting mechanism for cruise vessels that includes specific effluent limits, monthly reporting procedures, and adequate enforcement mechanisms.
2. Require that all discharge points on every ship be fitted with a recording device that measures the volume, time and date of every release.
3. Initiate an "observer program" for every vessel, akin to the foreign fisheries observer program run by NOAA. The observer should be trained to monitor on-board treatment systems such as oily bilge water separators and MSD's, and be prepared to witness and randomly sample all other wastewater releases.

The cruise ship industry may yet be confident their discharges cause no harm – but their subjective assessment has no bearing on whether they should be required to independently, and regularly demonstrate as much to the public. The application of these recommendations would result in negligible financial impact on this lucrative industry, a majority of whose members directly profit from the use of U.S. marine resources while paying little or no federal taxes or U.S. scale wages and benefits. These recommendations would not constitute an unfair burden – on the contrary – it would level the playing field between this industry and the oil, mining, timber, seafood processing, and other industries that must already monitor and report their discharges to state and federal regulators every month for the privilege of being able to discharge their wastestreams into our nation's waters.

Sincerely,

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Earth Island Institute

Attached: Bluewater Network petitions to EPA of April, 2000