

## 2009 Commercial Passenger Vessels Discharge Status and Wastewater Treatment

Vessel Operator	Vessel Name	Total Persons on Board <sup>1</sup>	Number of Port Calls <sup>2</sup>	Blackwater (BW) Treatment System Manufacturer	Graywater (GW) Treatment System Manufacturer	Approved for Discharge in Washington <sup>3</sup> ≥ 1nm from berth and ≥ 6 knots		Approved for Discharge in Washington <sup>3</sup> continuously		Type of Treatment System <sup>4</sup>
<b>NorthWest CruiseShip Association Vessels</b>										
Carnival Cruise Lines	<i>SPLENDOR</i>	4156	1	Unknown	Unknown	NO	NO	NO	NO	Unknown
Celebrity Cruises	<i>INFINITY</i>	3379	19	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Celebrity Cruises	<i>MERCURY</i>	2785	8	Biopure	None	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	<i>AMSTERDAM</i>	2027	22	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	<i>STATENDAM</i>	1846	1	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Holland America	<i>VOLENDAM</i>	2079	1	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Holland America	<i>WESTERDAM</i>	2716	21	Rochem Bio-filtration	Rochem LPRO	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system
Holland America	<i>ZAANDAM</i>	2079	22	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Norwegian Cruise Lines	<i>NORWEGIAN PEARL</i>	3476	20	Scanship	Mixed with BW	YES	YES	YES	YES	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Norwegian Cruise Lines	<i>NORWEGIAN STAR</i>	3340	20	Scanship	Mixed with BW	YES	YES	YES	YES	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Princess Cruise Line	<i>GOLDEN PRINCESS</i>	3658	20	Hamworthy Bioreactor	Accomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>PACIFIC PRINCESS</i>	1062	10	Hamworthy Bioreactor	Accomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>SAPPHIRE PRINCESS</i>	3916	1	Hamworthy Bioreactor	Accomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>STAR PRINCESS</i>	3748	20	Hamworthy Bioreactor	Accomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Royal Caribbean	<i>RHAPSODY OF THE SEAS</i>	3381	18	Hamman/NAVALIS	NAVALIS (under-going start-up)	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination + NAVALIS AWTS under-going start-up; biological, ultrafiltration with oxidation
Royal Caribbean	<i>SERENADE OF THE SEAS</i>	2950	2	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
<b>NON NorthWest CruiseShip Association Vessels<sup>5</sup></b>										
Fred Olsen	<i>BLACKWATCH</i>	1134	1	Unknown	Unknown	NO	NO	NO	NO	Unknown
Residensea	<i>THE WORLD</i>	550	1	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system

Total Calls: 208

<sup>1</sup>Numbers come from the Alaska Discharge Status Report and information gathered from the cruise industry. Most values include both passengers and crew. Actual number of passenger aboard varies dependent upon sales.

<sup>2</sup>Number of Port calls comes for Port of Seattle Cruise Schedule for 2008

<sup>3</sup>Washington waters refers to the "waters subject to this Memorandum of Understanding (MOU)" as defined in the MOU

<sup>4</sup>Information on the types of treatment systems comes from the Alaska Discharge Status Report and information from the cruise industry.

<sup>5</sup>Non Northwest CruiseShip Association vessels are not party to the MOU and the requirements of the MOU.