

## 2014 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>
						BW	GW	BW	GW	
<b>North West &amp; Canada Cruise Association Vessels</b>										
Carnival Cruise Lines	<i>CARNIVAL MIRACLE</i>	3054	19	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - FORMAT is an aeration, settling, and chlorination system.
Celebrity Cruises	<i>CENTURY</i>	2657	1	unknown <sup>6</sup>	unknown	NO	NO	NO	NO	unknown
Celebrity Cruises	<i>CELEBRITY SOLSTICE</i>	4350	18	Kruger/Wabaag	Mixed with BW	NO	NO	NO	NO	AWTS: Kruger/Wabag is a biological reactor and ultrafiltration system
Holland America	<i>AMSTERDAM</i>	2027	15	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	<i>OOSTERDAM</i>	2716	2	Rochem Bio-filtration	None	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system.
Holland America	<i>STATENDAM</i>	1815	1	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Holland America	<i>WESTERDAM</i>	2716	22	Rochem Bio-filtration	none	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system.
Norwegian Cruise Lines	<i>NORWEGIAN JEWEL</i>	3476	18	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Norwegian Cruise Lines	<i>NORWEGIAN PEARL</i>	3494	19	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Norwegian Cruise Lines	<i>NORWEGIAN SUN</i>	2886	1	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Oceania	<i>REGATTA</i>	1210	6	Triton	Triton (some)	NO	NO	NO	NO	AWTS: Triton Water MBR is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>CROWN PRINCESS</i>	4270	1	Hamworthy Bioreactor	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>GOLDEN PRINCESS</i>	3696	21	Hamworthy Bioreactor	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	<i>GRAND PRINCESS</i>	3706	19	Hamworthy Bioreactor	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Royal Caribbean	<i>RHAPSODY OF THE SEAS</i>	3200	15	NAVALIS	Mixed with BW	NO	NO	NO	NO	NAVALIS AWTS is a biological, ultrafiltration with oxidation system
<b>NON North West &amp; Canada Cruise Association Vessels<sup>5</sup></b>										
NONE										

Total Calls: 178

<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 2014

<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 updated to the best of our knowledge.

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

<sup>6</sup>Unknown refers to the fact that the type of treatment system has not been confirmed during an inspection.