## 2019 Commercial Passenger Vessels Discharge Status and Wastewater Treatment

2010 0011111	liciciai rassei	igoi v	00001	o Dioditary		ao an			or readment
					Approved		Approved		
					for		for		
					Discharge		Discharge		
		Total		Blackwater (BW)	in		in		
			Number of		Washingt		Washingt		
Vessel Operator	Vessel Name	Board <sup>1</sup>	Port Calls <sup>2</sup>	Manufacturer	on <sup>3</sup>		on <sup>3</sup>		Type of Treatment System⁴
vesser operator	Vessel Hume	Bourd	i oit oans	Mariaraotarer	BW	GW	BW	GW	Type of Treatment System
					DVV	GW	DW	GW	
CLIA - North West & Can	ada Cruise Association Vessel	s	1	1			1	1	
Carnival Cruise Lines	CARNIVAL LEGEND	3084	19	Triton-Format	NO	NO	NO	NO	Traditional MSD - Triton-Format - aeration, settling, chlorination
i									AWTS: Kruger/Wabag is a biological reactor and ultrafiltration
Celebrity Cruises	CELEBRITY ECLIPSE	3891	1	Kruger/Wabaag	NO	NO	NO	NO	system
									AWTS: Kruger/Wabag is a biological reactor and ultrafiltration
Celebrity Cruises	CELEBRITY SOLSTICE	3891	17	Kruger/Wabaag	NO	NO	NO	NO	system
Holland America	AMSTERDAM	2160	10	Hamworthy Type II MSD	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	EURODAM	3039	22	Hamworthy Bioreactor	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Holland America	MAASDAM	1977	1	Zenon AWWTS	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system.
Holland America	OOSTERDAM	2628	22	Rochem AWWTS	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system.
Norwegian Cruise Lines	NORWEGIAN BLISS	5319	23	Scanship	NO	NO	NO	NO	disinfection system
Notwegian Cruise Lines	NORWEGIAN BLISS	5519	23	Scansnip	INO	NO	INC	INO	
	NODWEGAN, 101/	5044	-00			110			AWTS: Scanship is a biological reactor floculation/flotation & UV
Norwegian Cruise Lines	NORWEGIAN JOY	5344	26	Scanship	NO	NO	NO	NO	disinfection system
									AWTS: Triton Water MBR is a biological reactor and ultrafiltration
Oceania	REGATTA	1275	9	Triton AWP	NO	NO	NO	NO	system
Princess Cruise Line	GRAND PRINCESS	3551	2	Hamworthy Bioreactor	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	ROYAL PRINCESS	4683	1	Hamworthy Bioreactor	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	RUBY PRINCESS	4031	19	Hamworthy Bioreactor	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	STAR PRINCESS	3550	21	Hamworthy Bioreactor	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
				,					AWTS: Scanship is a biological reactor floculation/flotation & UV
Royal Caribbean	OVATION OF THE SEAS	5220	18	Scanship	NO	NO	NO	NO	disinfection system
rtoyar Garibbean	OVATION OF THE SEAS	UZZU	- 10	Coarionip	110	110	110	110	diomicotion system
Seabourn Cruise Line	SEABOURN SOJOURN	788	1	Hamwarthy Diaroactor	NO	NO	NO	NO	AWTS: Hamwarthy is a higherical reactor and ultrafiltration system
Seaboum Cruise Line	SLADUURN SUJUURN	100		Hamworthy Bioreactor	INU	INU	INU	INU	AWTS: Hamworthy is a biological reactor and ultrafiltration system
\A(':	0740 / 50540	007		Dark and UE AWTO	NO	NO	NO	NO	AM/TO: Deahard UE is a high-risel assets and offer (%)
Windstar	STAR LEGEND	367	1	Rochem UF AWTS	NO	NO	NO	NO	AWTS: Rochem UF is a biological reactor and ultrafiltration system.
NON CLIA - North West & Canada Cruise Association Vessels <sup>5</sup>									
		T T	1	T .			T	ı	I tale ave
Azamara Club Cruises	QUEST	1288	2	Unknown	NO	NO	NO	NO	Unknown
		Total Calls:	215						

Total Calls: 215

Numbers come from the Port of Seattle, Alaska Discharge Status Report and information gathered from the cruise industry and research. Most values Include both passengers and crew. Actual number of passenger aboard varries dependent upon sales.

<sup>&</sup>lt;sup>2</sup>Number of Port calls comes for Port of Seattle Cruise Schedule for 2019

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

Information on the types of treatment systems comes from inspections, the Alaska Discharge Status Report and information from the cruise industry updated to the best of our knowledge.

<sup>&</sup>lt;sup>5</sup>Non Cruise Lines International Association North West & Canada vessels are not party to the MOU and the requirements of the MOU.

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