

CRUISE SHIP DISCHARGES

MEMORANDUM OF UNDERSTANDING CRUISE OPERATIONS IN WASHINGTON STATE

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COMPLIANCE 2013-14

- Port Calls
 - All port calls by CLIA-NWC vessels
- Discharge Approvals
 - None requested, none approved
- Inspections
- Sampling Data – none required
- Annual Compliance/Non-compliance notifications



Vessel Summary 2013

- 186 port calls
- 15 vessels
- 9 vessels homeported
- 9 AWTS installed, 4 unknown, 2 traditional MSDs

2013 Commercial Passenger Vessels Discharge Status and Wastewater Treatment

Vessel Operator	Vessel Name	Total Persons on Board ¹	Number of Port Calls ²	Blackwater (BW) Treatment System Manufacturer	Graywater (GW) Treatment System Manufacturer	Approved for Discharge in Washington ³ <small>§ 166, Title 166A and § 170A</small>		Approved for Discharge in Washington ³ <small>ordinance</small>		Type of Treatment System ⁴
						BW	GW	BW	GW	
North West & Canada Cruise Association Vessels										
Carnival Cruise Lines	CARNIVAL MIRACLE	3054	19	Traditional MSD - Triton	None	NO	NO	NO	NO	Traditional MSD - FORMAT is an aeration, settling and chlorination system.
Celebrity Cruises	CENTURY	2857	1	unknown ⁵	unknown	NO	NO	NO	NO	unknown
Celebrity Cruises	MILLENNIUM	3137	1	unknown	unknown	NO	NO	NO	NO	unknown
Celebrity Cruises	CELEBRITY SOLSTICE	4350	19	unknown	unknown	NO	NO	NO	NO	unknown
Crystal Cruises	CRYSTAL SYMPHONY	1467	1	unknown	unknown	NO	NO	NO	NO	unknown
Holland America	AMSTERDAM	2027	1	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	GOETTERDAM	2716	22	Rodham Bio-Filtration	None	NO	NO	NO	NO	AWTS: Rodham is a reverse osmosis or ultrafiltration system.
Holland America	WESTERDAM	2716	21	Rodham Bio-Filtration	none	NO	NO	NO	NO	AWTS: Rodham is a reverse osmosis or ultrafiltration system.
Norwegian Cruise Lines	NORWEGIAN JEWEL	3476	18	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor/faculation/clarification & UV disinfection system.
Norwegian Cruise Lines	NORWEGIAN PEARL	3484	19	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor/faculation/clarification & UV disinfection system.
Coastal Cruises	REGATTA	1210	7	Triton	Triton (some)	NO	NO	NO	NO	AWTS: Triton Water MBR is a biological reactor and ultrafiltration system.
Princess Cruise Line	GOLDEN PRINCESS	3656	20	Hemworthy Bowvector	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hemworthy is a biological reactor and ultrafiltration system.
Princess Cruise Line	SAPPHIRE PRINCESS	3770	2	Hemworthy Bowvector	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hemworthy is a biological reactor and ultrafiltration system.
Princess Cruise Line	STAR PRINCESS	3740	21	Hemworthy Bowvector	Accommodations mixed with BW	NO	NO	NO	NO	AWTS: Hemworthy is a biological reactor and ultrafiltration system.
Royal Caribbean	RHAPSODY OF THE SEAS	3200	14	NAVALIS	Mixed with BW	NO	NO	NO	NO	NAVALIS AWTS is a biological, ultrafiltration with oxidation system.
NON North West & Canada Cruise Association Vessels ⁶										
NONE										

¹Numbers 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.

²Number of Port calls comes for Port of Seattle Cruise Schedule for 2013

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

⁴Information 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.

⁵Non-Northwest Cruise/Ship Association vessels are not party to the MOU and the requirements of the MOU.

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



Vessel Summary 2014

- 178 port calls
- 15 vessels
- 9 vessels homeported
- 12 AWTS installed, 1 unknown, 2 traditional MSDs

2014 Commercial Passenger Vessels Discharge Status and Wastewater Treatment

Vessel Operator	Vessel Name	Total Persons on Board ¹	Number of Port Calls ²	Blackwater (BW) Treatment System Manufacturer	Graywater (GW) Treatment System Manufacturer	Approved for Discharge in Washington ³ <small>2 feet from berth and 2.5 knots</small>		Approved for Discharge in Washington ³ <small>contiguously</small>		Type of Treatment System ⁴
						BW	GW	BW	GW	
North West & Canada Cruise Association Vessels										
Carnival Cruise Lines	CARNIVAL MIRACLE	3054	19	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - FORMAT is an aeration, settling, and chlorination system.
Celebrity Cruises	CENTURY	2857	1	unknown ⁵	unknown	NO	NO	NO	NO	unknown
Celebrity Cruises	CELEBRITY SOLSTICE	4350	18	Kruger/Wabaag	Mixed with BW	NO	NO	NO	NO	AWTS: Kruger/Wabaag is a biological reactor and ultrafiltration system
Holland America	AMSTERDAM	2027	15	Traditional MSD	None	NO	NO	NO	NO	Traditional MSD - aeration, settling, chlorination
Holland America	OOSTERDAM	2716	2	Rochem Bio-filtration	None	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system.
Holland America	STATENDAM	1815	1	Zenon	Mixed with BW	NO	NO	NO	NO	AWTS: Zenon is a biological reactor and ultrafiltration system
Holland America	WESTERDAM	2716	22	Rochem Bio-filtration	none	NO	NO	NO	NO	AWTS: Rochem is a reverse osmosis or ultrafiltration system.
Norwegian Cruise Lines	NORWEGIAN JEWEL	3478	18	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Norwegian Cruise Lines	NORWEGIAN PEARL	3494	19	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Norwegian Cruise Lines	NORWEGIAN SUN	2886	1	Scanship	Mixed with BW	NO	NO	NO	NO	AWTS: Scanship is a biological reactor flocculation/flotation & UV disinfection system
Oceania	REGATTA	1210	6	Triton	Triton (some)	NO	NO	NO	NO	AWTS: Triton Water MBR is a biological reactor and ultrafiltration system
Princess Cruise Line	CROWN PRINCESS	4270	1	Hamworthy Bioreactor	Acomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	GOLDEN PRINCESS	3686	21	Hamworthy Bioreactor	Acomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Princess Cruise Line	GRAND PRINCESS	3706	19	Hamworthy Bioreactor	Acomodations mixed with BW	NO	NO	NO	NO	AWTS: Hamworthy is a biological reactor and ultrafiltration system
Royal Caribbean	RHAPSODY OF THE SEAS	3200	15	NAVALIS	Mixed with BW	NO	NO	NO	NO	NAVALIS AWTS is a biological, ultrafiltration with oxidation system
NON North West & Canada Cruise Association Vessels¹										
NONE										
		Total Calls				178				

¹Numbers 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.

²Number of Port calls comes for Port of Seattle Cruise Schedule for 2014

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

⁴Information 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.

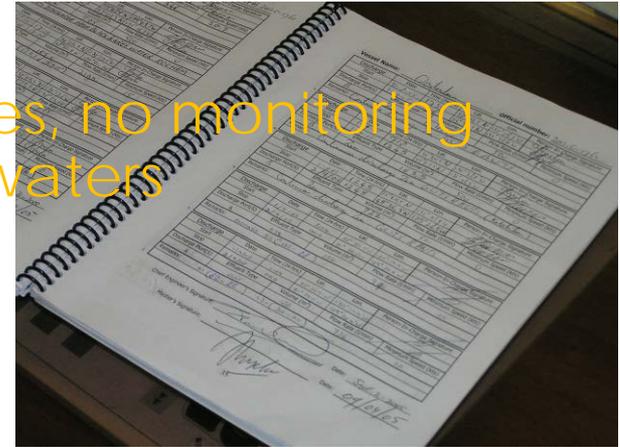
⁵Non Northwest CruiseShip Association vessels are not party to the MOU and the requirements of the MOU.

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



COMPLIANCE EVALUATION

- Monthly Sampling Data
 - No vessels approved for discharges, no monitoring required or received for WA MOU waters
- WET Testing
 - None required for 2013-14
- Inspections
 - Allowed for all vessels under MOU at least once/season to verify compliance with MOU
- Compliance/Non-Compliance Notifications
 - 2 incidents reported, one each season
- Annual Compliance Reports



Inspections

- Typical Inspection includes
 - Introductions/overview of plan for the day (prior notification given)
 - Control room
 - Run-through of how system works
 - Variety of questions on staffing, training, protocols...
 - Review of records
 - Tour of treatment system(s)
 - Observations of other waste streams on the ship
 - Conclude

 - Approximately 2-3 hours in length
 - Similar to inspections for on-land plants



2013 Inspections/ Document Review

- Inspections Conducted
 - 4 inspections conducted
- Inspection findings
 - Discharge protocols thorough on some vessels.
 - One non-compliance follow-up conducted.
 - Recommendations made –
 - Continue to work towards high functioning wastewater treatment systems.
 - One vessel to review pharmaceutical disposal policy for CLIA consistency.
 - One vessel - follow clear protocols to avoid unauthorized discharges and assure that all new/returning staff are clear on the communication requirements and protocols for discharges.
- Copies of discharge documents requested/reviewed
 - Requested, received, reviewed, no inconsistencies with MOU requirements found beyond those reported.

DATE OF INSPECTION	VESSEL
August 5, 2013	OCEANIA REGATTA
August 23, 2013	CELEBRITY SOLSTICE
September 8, 2013	GOLDEN PRINCESS
September 10, 2013	CARNIVAL MIRACLE

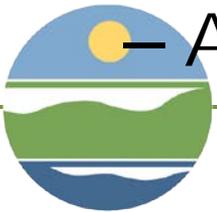
2014 Inspections/ Document Review

- Inspections Conducted
 - 5 inspections conducted
- Inspection findings
 - Discharge protocols thorough with verification; waste minimization improvements
 - Recommendations made –
 - Continue to work towards high functioning wastewater treatment systems.
 - A recommendation to one vessel to look into evaluating alternate dry cleaning methods
- Copies of discharge documents requested/reviewed
 - Requested, received, reviewed, no inconsistencies with MOU requirements found beyond those reported.

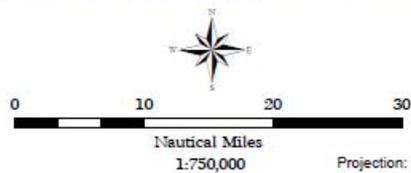
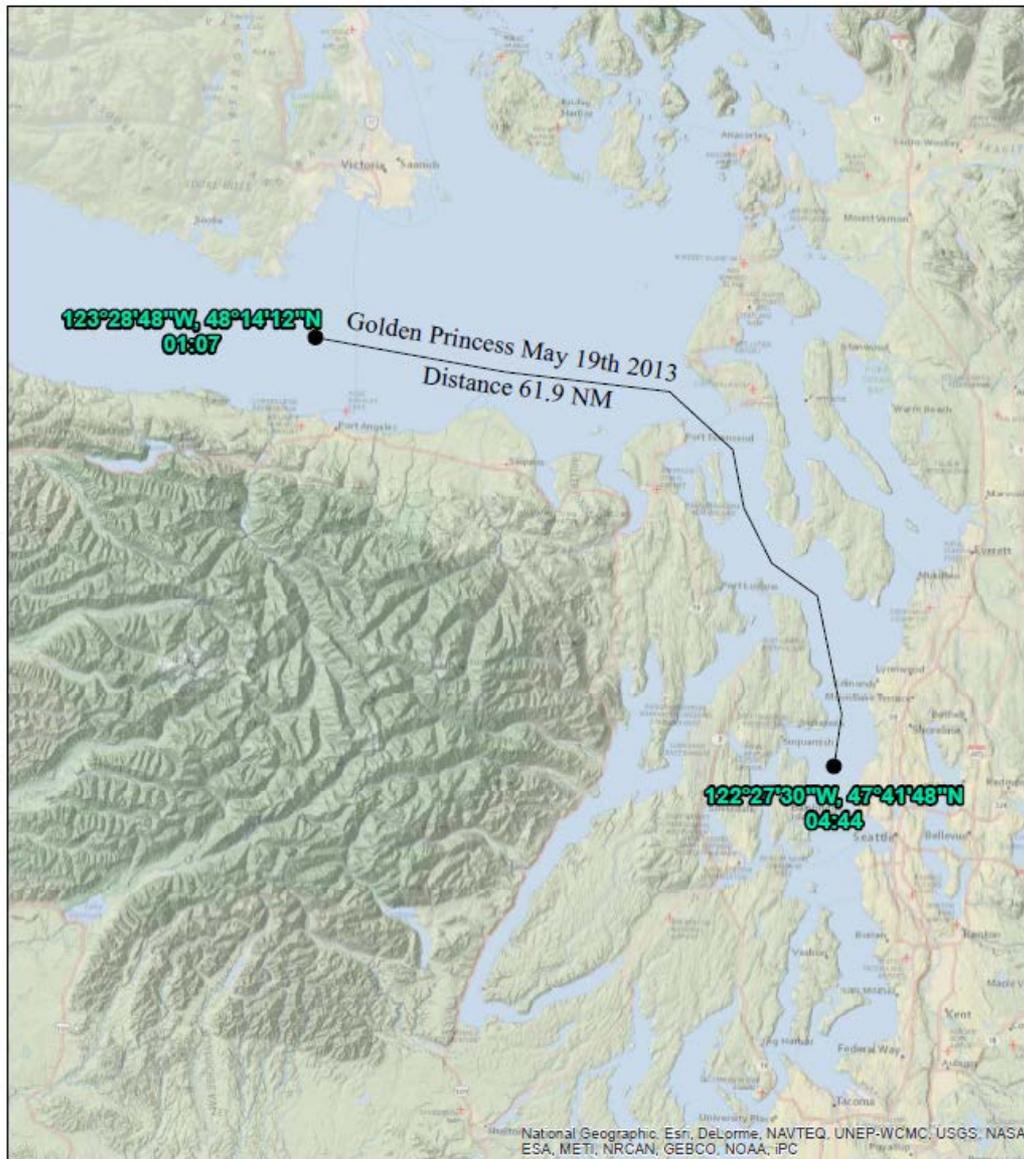
DATE OF INSPECTION	VESSEL
July 31, 2014	OCEANIA REGATTA
August 2, 2014	NORWEGIAN JEWEL
August 8, 2014	RHAPSODY OF THE SEAS
September 7, 2014	HOLLAND AMSTERDAM
September 15, 2014	CROWN PRINCESS

2013 Compliance Notifications

- Non-Compliance notifications
 - Golden Princess
 - Discharge of MBR treated effluent on May 19, 2013 without prior authorization
 - Princess Cruises promptly notified and provided information, reviewed during inspection
 - Violation of MOU
 - Cause – Communication failure between Bridge and ECR staff
 - Prevention – Communication improvements, cross-checking, vigilance
- Annual Compliance letters
 - All received



Approximate
path of discharge
Golden Princess
May 19, 2013

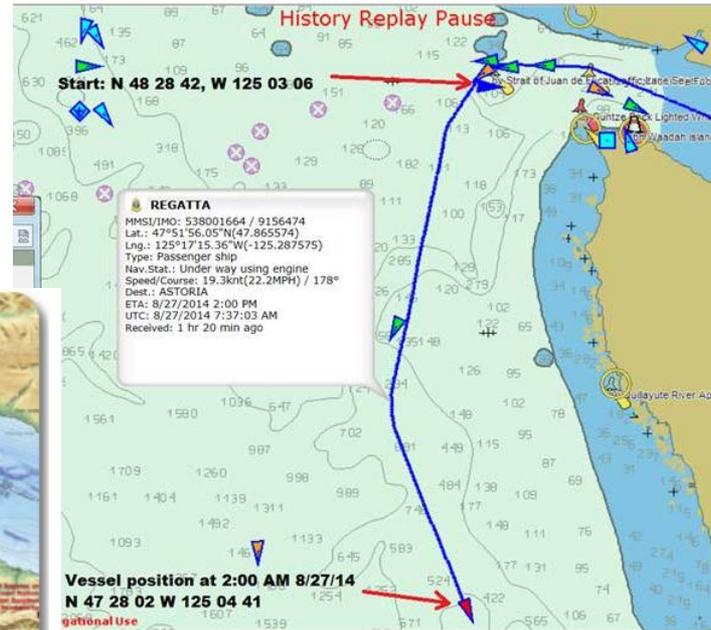
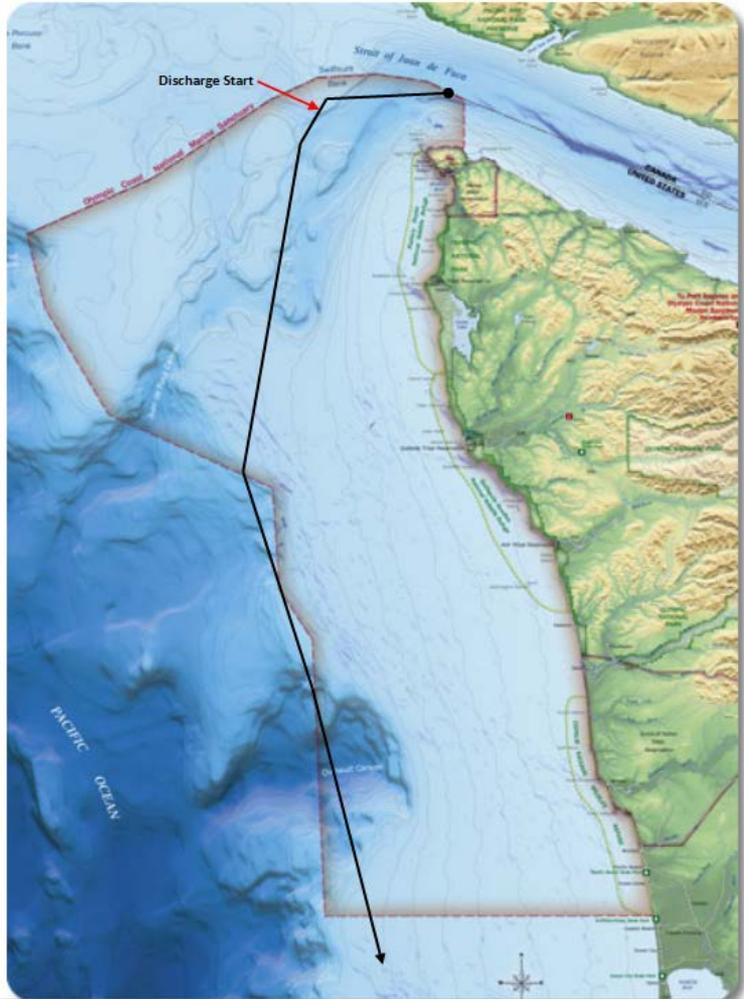


Projection: NAD 83 HARN Washington State Plane South FIPS 4602

2014 Compliance Notifications

- Non-Compliance notifications
 - Oceania Regatta
 - Discharge of untreated grey water and treated sewage/grey water in OCNMS on August 26-27, 2014
 - Notified promptly
 - Violation of OCNMS laws, NOAA investigating
 - Prior inspection very clear on protocol to not discharge
- Annual Compliance letters
 - All received





atta transit along ATBA August 26-27 2014

AIS tracking data showing approximate path of discharge Oceania Regatta August 26-27, 2014

Olympic Coast National Marine Sanctuary with approximate path of discharge.

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Ecology Website:

<http://www.ecy.wa.gov/ecyhome.html>

Cruise Ship Website:

http://www.ecy.wa.gov/programs/wq/wastewater/cruise_mou/index.html