State of Washington Department of Ecology

Cruise Ship Memorandum of Understanding, Cruise Operations in Washington State Inspection Report

Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008
Phone: (425) 649-7000
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Inspection Date	Permit Number	County	Receiving Waters	Ecology Inspector
September 18, 2015	NA	King	Marine Waters	Amy Jankowiak
Entry Time 9:47 am Exit Time 11:41 am	Photos Taken ☒ Yes ☐ No	Samples Taken ☐ Yes ☒ No	Inspection Announced ☒ Yes ☐ No	Discharges to: ☒ Surface Water ☐ Ground Water ☐ Dewater ☐ POTW

Name and Location of Site Inspected:
CORAL PRINCESS, Princess Cruises
Pier 66
Seattle, Washington

Additional Participants/Inspectors:

On-Site Representative(s): ***Name/Title/Phone/e-mail***
Yulian Varbanov, Environmental Officer

Responsible Official(s): ***Name/Title/Address/Phone/e-mail***
Andrew Lorenzana, Environental Operations Manager
Princess Cruises
24200 Magic Mountain Parkway, Santa Clarita, CA 91355-1283
661-753-2755; alorenzana@princesscruises.com

Other Facility Data:
Notification made to Andrew Lorenzana on September 15, 2015

IMO Number: 9229659

Section A: Areas Evaluated

☒ Black/Gray Wastewater System	☒ Residual Solids	☒ Records/Reports	☒ Hazardous Waste/ Solid Waste	☐ Sampling/Monitoring
☒ Discharge Locations	☒ Operation & Maintenance	☒ Sludge Handling/ Disposal	☒ Oily Bilge Water	☒ Other

Section B: For Vessels Discharging ≥ 1nm from Berth and ≥ 6 Knots Only [2.1.3(A)]

☐	Schematics Match Black/Gray Wastewater System	
☐	Operations as Described in Submitted Documentation	
☐	Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
☐	Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
☐	Auto Shut Down or Operational Controls to Insure System Shut Down if High Turbidity Occurs	
	Turbidity or Equivalent: Last Calibration: Trigger Level for Early Alarm: Trigger Level for Shutdown: Recorded Turbidity/Equivalent Levels Above Triggers:	
☐	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
☐	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	Disinfection Effectiveness Monitoring:	
☐	Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
☐	Disinfection System Operated and Maintained Properly	
	Disinfection System:	

NOT APPLICABLE

Section C: For Vessels Discharging Continuously [2.1.3(B)]		
☐	Schematics Match Black/Gray Wastewater System	
☐	Operations as Described in Submitted Documentation	
☐	Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
☐	Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
☐	Auto Shut Down or Operational Controls to Insure System Shut Down if High Turbidity Occurs	
	Turbidity or Equivalent: Last Calibration: Trigger Level for Early Alarm: Trigger Level for Shutdown: Recorded Turbidity/Equivalent Levels Above Triggers:	
☐	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
☐	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	Disinfection Effectiveness Monitoring: NOT APPLICABLE	
☐	Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
☐	Disinfection System Operated and Maintained Properly	
	Disinfection System:	
	Section D: General (Approved to Discharge)	
☐	No Discharges Within ½ Miles From Shellfish Beds/ Protocol (President's Point, Apple Tree Cove, Tyee Shoal, Middle Point (near Pt Townsend))	
☐	Discharges Immediately Stopped When High Turbidity Occurs	
☐	Discharges Immediately Stopped When Disinfection System Upset Occurs	
☐	Immediate Notifications Made to WA Department of Health for Disinfection System Upset	
☐	Sampling Conducted 2/month, 1/month in Seattle (BOD, TSS, Fecal Coliform, pH, Chlorine Residual)	
☐	Whole Effluent Toxicity Testing 1 per 2 Years (homeported) or 1/40 Calls for Continuous	

Section E: General		
☒	Wastewater Discharge Records Review	Discharge records were reviewed (blackwater/graywater/residual solids) and are maintained properly. No discharges appear to be in the OCNMS, MOU waters or Washington state waters (MOU related waters).
☒	Wastewater Discharges protocol per MOU and managed properly	The discharge protocols appear to be consistent with MOU requirements to not occur in MOU related waters.
☒	Residual Solids Managed Properly/Disposal Protocol per MOU	Residual solids appear to be handled per MOU requirements.
☒	Hazardous Waste Managed Properly	Hazardous waste appears to be handled per MOU requirements.
☒	WA Hazardous Waste Guidelines Followed (Appendix vii)	Hazardous waste guidelines appear to be handled per the MOU and guidelines.
☒	Solid Waste Managed Properly (zero garbage discharge)	Solid waste appears to be managed per MOU requirements.

☒	Photo/X-Ray Waste Managed Properly (fluids, cartridges,...) and landed ashore	Photo and x-ray waste appears to be handled per MOU requirements.
☒	Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	No dry cleaning is done on board and therefore dry cleaning waste products are managed per MOU requirements.
☒	Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Unused or outdated pharmaceuticals appear to be managed per MOU requirements.
☒	Fluorescent and Mercury Vapor Lamp Bulbs Managed Properly (prevent release of mercury)	Fluorescent and mercury vapor lamp bulbs appear to be managed per MOU requirements.
☒	Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Waste reduction/reuse/recycling opportunities appear to be maximized per MOU requirements.
☒	Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries appear to be managed per MOU requirements.
☒	Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash appears to be managed per MOU requirements.
☒	Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge water appears to be managed per MOU requirements.
☒	Ballast Water Managed Properly (per Wash regs –reporting, treated or if open sea exchange >200 nm from outside EEZ, 50nm if not EEZ)	Ballast water appears to be managed properly per MOU requirements.
☒	OCNMS rules and regs followed	The discharge protocol appears to be consistent with MOU requirements to not occur in the OCNMS.
	Additional General Questions	
☒	How is deck runoff and hull cleaning handled (scuppers...) (non-toxic/phosphate free cleaners, biodegradable)	Deck runoff and hull cleaning appears to be handled per MOU requirements.
☒	How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	Outside vessel maintenance appears to be handled per MOU requirements.
☒	Sculleries and Galleys – type of detergents and degreasers used (phosphate free and non-toxic)?	Galleys appear to use phosphate free and non-toxic detergents and degreasers.
☒	How are food waste discharges handled (prevention of erroneous materials)?	Food waste appears to be handled per MOU requirements.
☒	Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical sinks/floor drains appear to be handled per MOU requirements.
☒	Where is pool and spa water discharged? Dechlorinated/debrominated and underway?	Pool and spa water appears to be handled per MOU requirements.
☒	What type of fuel is used and percent sulfur content?	Fuel sulfur content meets requirements.

Other:

Section F: Sampling Results

Parameter	Results
Biochemical Oxygen Demand 5-Day (BOD_5)	
Total Suspended Solids (TSS)	
Fecal Coliform	
Residual Chlorine	
pH	
Ammonia, Nitrogen	

NOT APPLICABLE

Section G: Summary of Findings/Comments

Introduction

Amy Jankowiak, Washington State Department of Ecology (Ecology) Northwest Regional Office, Water Quality Program (NWRO-WQ), conducted the inspection of the Princess Cruises CORAL PRINCESS on September 18, 2015. The main contact on board the CORAL PRINCESS was Yulian Varbanov, Environmental Officer for the CORAL PRINCESS. Prior notification of the visit was given on September 15, 2015 for security protocol. The purpose of the inspection was to evaluate compliance with the *Memorandum of Understanding Cruise Operations in Washington State* (MOU), as amended. The CORAL PRINCESS is not approved to discharge wastewater in MOU waters.

The CORAL PRINCESS was put into service in 2003 and is 964 feet long with 16 decks. Passenger capacity is currently about 1970, with about 900 crew.

The CORAL PRINCESS is scheduled for this one call on September 18, 2015 while repositioning from the Vancouver BC to Alaska route down to California.

Inspection

I arrived and boarded the ship (photo #01) at 9:47 am and first met with Yulian Varbanov, Environmental Officer and the Captain for the CORAL PRINCESS. We briefly discussed the purpose and plan for the inspection. We first discussed discharge protocols for the various wastestreams. We then went to the Engine Control Room (ECR) and went through records and viewed systems. We then viewed the garbage and recycling room, hazardous waste area, oily water separators, the marine sanitation devices (MSD), discharge ports, food waste, ballast treatment system, and the laboratory. We concluded with a brief debriefing with the Captain and I disembarked the vessel at 11:41 am.

Discharge Types and Protocols:

The vessel/line's policy is no discharge in MOU waters, Washington State waters and the Olympic Coast National Marine Sanctuary (OCNMS) (MOU related waters). A plan for the voyage plan is completed based on the line's "Worldwide Cruising Environmental Standards- Washington State." The Standards outline no discharges for Membrane Bioreactor (MBR) permeate, MBR sludge, accommodation, galley, and laundry grey water, and food waste. Air emissions allow incinerator use unless in Elliot Bay. Standards and protocols for discharges are posted on the bridge and in the office. If a discharge is to occur, first there is confirmation that they are not in a restricted area. The bridge contacts the engine control room (ECR) (photo # 17) to give permission and the ECR conducts the discharge and logs it. The bridge notifies the ECR with ample time to stop a discharge when entering a restricted area. The ECR confirms the stop, logs it and logs are sent to the Environmental Officer. In addition to the logs, there are electronic recordings of the discharge ports. Some of the discharge ports are padlocked. For black water and gray water, the latitude and longitude coordinates are recorded in the *Sewage and Graywater Discharge Record Book.* The date, time and location of both the start and the stop of the discharges are recorded, along with port location, effluent type, and volumes. The wastewater discharge records for this one port call was reviewed and copied and showed no discharges in MOU related waters.

Discharge Types:

Residual solids initial screenings from the MBR are bagged and sent to incineration. Any residual solids from the MBR that are not returned to the system are discharged outside of MOU related waters.

Oily bilge water first goes to the bilge precip tank and is then treated with a centrifugal oily water separator (OWS) (photo # 20) and then if the oil content is <15, it is then treated with a static OWS (photo #22). If in an area for discharge it is sent overboard (photo #24), otherwise it is sent back to the precip tank. If it is greater than 15 ppm at any point, it is sent back for reprocessing. There are oily content meters on each system (photos # 21 and #23). A white box (photo #19) is used to secure discharges of only <15 parts per million oil content and is padlocked with two keys by the Environmental Officer and the Chief Engineer. No discharges of oily bilge occur in MOU related waters. The oily content meters are certified approximately twice per year. The oily record book was reviewed. The oily content meters and ballast discharges are also monitored in the ECR (photo #16).

The CORAL PRINCESS has 6 fresh water Jacuzzis and 2 freshwater pools. Pool and Jacuzzi discharge outside of MOU related waters and if discharges occur, sodium thiosulfate is used to neutralize chlorinated water (photo #38).

Ballast discharges occur outside of Alaska and Canadian waters, with none in Washington waters. There is a treatment system (photo # 35) for ballast water that includes filtration (photo #36) and ultraviolet light (UV) disinfection (photo #37). The system is USCG certified and is tested twice per year.

Food waste is sorted at the source and sent to pulpers. All food waste is held in tanks (about 10 days holding time) (photo # 18) and discharges occur outside of MOU related waters. Food waste that can't be pulped such as bones, egg shells and rinds (photo #15) are held for composting or incineration. Grease collected from the grease traps is offloaded as hazardous waste. Used cooking oil (photo # 14) is sent ashore for recycling.

Any deck runoff is discharged directly overboard. No chemicals are used for cleaning, only NP deck clean approved by USCG, phosphate and toxic free. When boarding the vessel, staff was using rollers and NP deck clean to spot clean the outside of the vessel (photos # 02, #03, and #04). No paint chipping or painting is done in Seattle, but in other areas, secondary containment is used. If windows are cleaned, only freshwater is used.

Laundry water is sent to the MBR for treatment. Dry cleaning is not done on board. Therefore, no chemical such as perchloroethylene (Perc) are used on the vessel.

No hazardous waste is offloaded in Seattle. Hazardous waste (photo #13) includes items such as oily rags, photo waste that doesn't meet 5ppm, uncrushed fluorescent bulbs and lamps, on-punctured aerosols, batteries, pesticides, oily sludge, filters, solvents and paints and incinerator ash (hazardous in Canada). Pyrotechnics are sent back to the vendor.

X-rays are done digitally and therefore do not have a waste product. Photo waste is collected and treated with a silver recovery unit (photo #11). Bio-hazardous waste and medical waste is incinerated and sharps are offloaded as medical hazardous waste.

Unused or outdated pharmaceuticals and narcotics are incinerated and logged. Drains in the medical facility go to the blackwater tanks.

Solid waste (garbage, recyclables, etc) is collected and sorted (photo #06) in the garbage and recycling room and is either reused, recycled, incinerated or offloaded to shore as appropriate. Paper, cardboard, plastics, metals, glass (photo #07) and aluminum (photo #05) are compacted and crushed and recycled. Some plastics, some batteries, toners, cartridges, electronics and used cooking oil are recycled. Some materials are stored in cold storage (photo #12). Garbage records were reviewed and appear to be in compliance with the MOU.

Light plastics, food- contaminated cardboard, and light wrappings are incinerated (photos #08 and #09). Incinerators are used outside of Elliott Bay (photo #10) and ash is tested regularly and offloaded.

The CORAL PRINCESS uses fuel with a sulfur content of 0.008% MGO in Port and approximately 1.5% fuel outside. The vessel has an exemption from ECA as it will be installing scrubbers. The vessel is not using shore power. Fresh water is bunkered and can be produced on board with either a reverse osmosis system or evaporators.

Black water and Gray water System:
Blackwater, which includes toilet waste and graywater which includes sink and shower water and laundry water is treated with a Hamworthy AWTS MBR and is currently discharged outside of MOU related waters. Galley water does not go to the MBR as not to interfere with the system and is discharged outside of MOU related waters. There are two separate Hamworthy systems. Both combine blackwater and graywater.

Blackwater is collected by vacuum to collection tanks (photo #25) and is combined with graywater and is then sent to the MBR. Wastewater flow moves to the screen press (photo #26). The solids are screened into bags (photo #27) and are then sent to the incinerator. The liquid moves to the 1st stage of the membrane bioreactor where aeration occurs. From the 1st stage, flow moves to the Inter-stage Russel filters (photo #30). The inter-stage filtered solids are returned back to the 1st stage. The liquid moves onto the 2nd stage of the MBR for further aeration. From the 2nd stage MBR, flow is sent to the membrane modules for ultrafiltration (photo #28). The membranes are cleaned individually (photo #29). Effluent from the membrane modules at less than 1 micron are sent to a permeate tank (photo #33) where turbidity is monitored. Flow then goes to holding tanks if not in an area of discharge. Flow for discharge is then sent for ultraviolet (UV) disinfection (photo # 32) prior to discharge (photo #34). Currently, effluent is held and discharged outside of MOU waters. The system has holding capacity of about four days (about 3,600 cubic meters with about 650 cubic meters produced daily).

Turbidity is measured continuously on each of the MBR permeate tanks. The UV system consists of 6 bulbs which are alarmed. The maintenance system provides details of when all maintenance is needed and there is a dedicated staff person for the MBRs. Monitoring and analysis (photos #39 and #40) also occurs weekly on the vessel to assure system operations including total suspended solids, total and free chlorine (typically non-detect), total coliform, ammonia, and pH. Coliform is done daily. An outside laboratory is also used in Alaska. This season, all results were in compliance. Mr. Varbanov holds a certification with Admiralty Environmental Laboratory.

Conclusions and Recommendations

The protocols and procedures for discharge are clear and inclusive of verification.

The records were very organized, easy to read, and complete with detail.

The staff was very knowledgeable of the systems and procedures related to compliance with the MOU.

Attachments:
Discharge Log for 9/17, Environmental Standards
Photographs

Copies to:
Yulian Varbbanov, Princess Cruises
Mark Toy, Health
Greg Wirtz, CLIA-NWC
Stephanie Jones Stebbins, Port of Seattle
Kevin Fitzpatrick, Ecology
Mark Henley, Ecology
Amy Jankowiak, Ecology
Central Files: Princess Cruises – CORAL PRINCESS; WQ 6.1

Name and Signature of Inspector:	Agency/Office/Telephone:	Date
Amy Jankowiak	Department of Ecology Northwest Regional Office Water Quality Program Municipal Compliance Specialist 425-649-7195	9/24/15
Name and Signature of Reviewer:	**Agency/Office/Telephone:**	**Date**
Mark Henley	Department of Ecology Northwest Regional Office Municipal Unit Supervisor 425-649-7103	9/24/15

PHOTO #:01 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010001
DESCRIPTION: CORAL PRINCESS VESSEL, PIER 66 SEATTLE

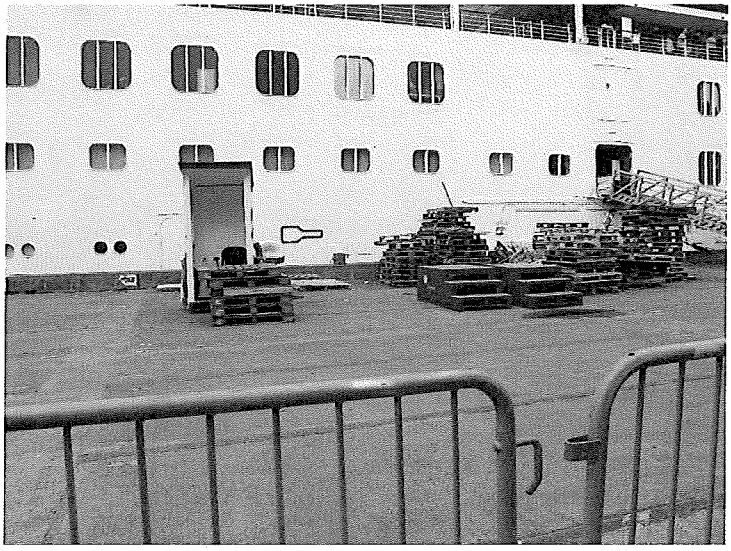

PHOTO #:02 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010002
DESCRIPTION: VESSELCLEANING – RED BUCKET

PHOTO #:03 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010004
DESCRIPTION: VESSEL CLEANING MATERIALS

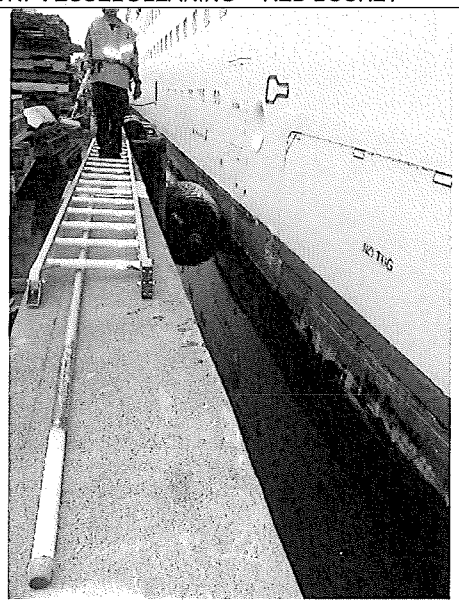

PHOTO #:04 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P10100003
DESCRIPTION: AREA UNDER CLEANING

PHOTO #:05 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010005
DESCRIPTION: ALUMINUM CANS - COMPACTED

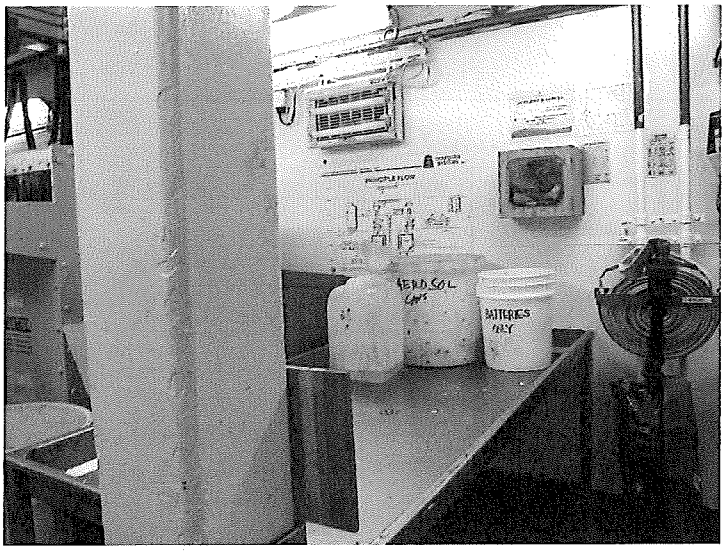

PHOTO #:06 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010006
DESCRIPTION: SORTING TABLE AND BETTERING RECYCLING

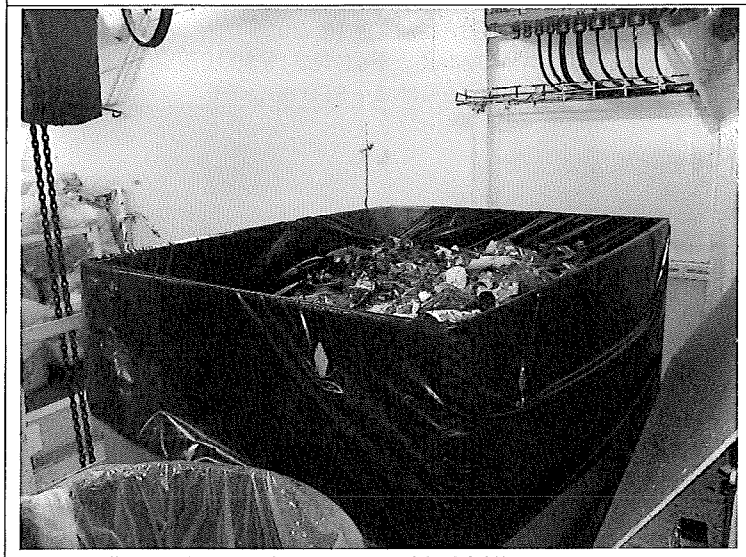

PHOTO #:07 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010007
DESCRIPTION: GLASS - CRUSHED

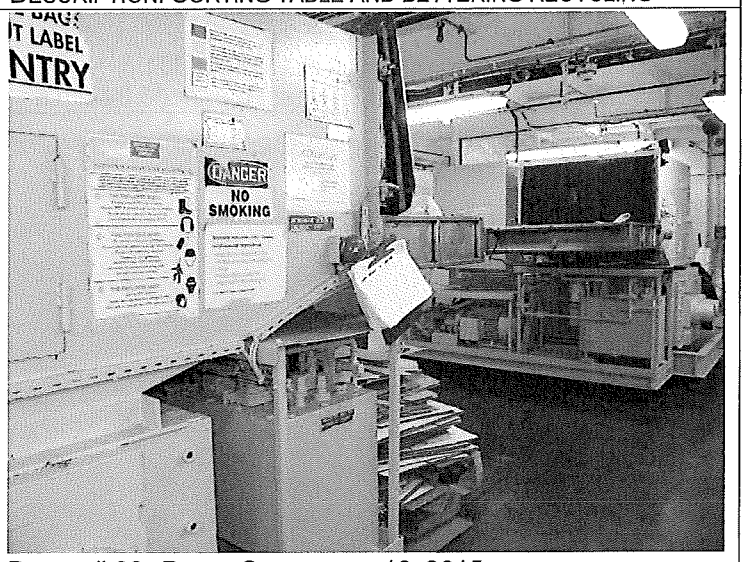

PHOTO #:08 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010009
DESCRIPTION: INCINERATORS

PHOTO #:09 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010010
DESCRIPTION: INCINERATOR LOADING AREA

PHOTO #:10 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010011
DESCRIPTION: MATERIALS WAITING INCINERATION

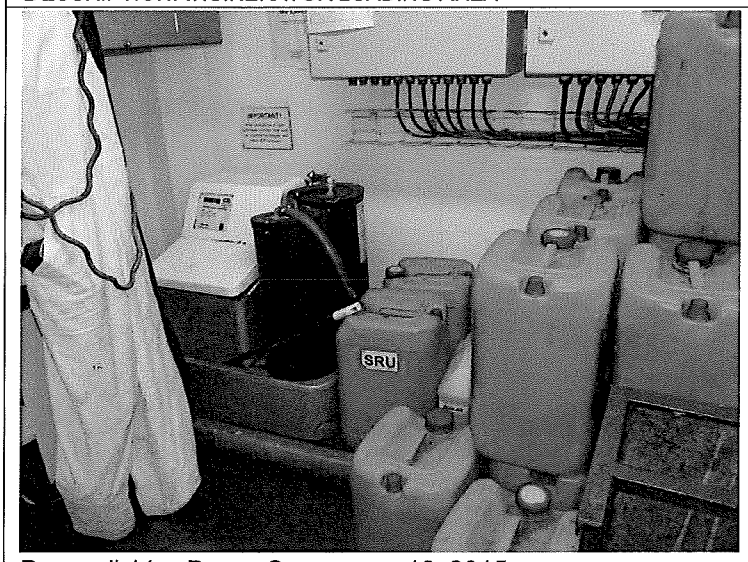

PHOTO #:11 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010012
DESCRIPTION: PHOTO WASTE SILVER RECOVERY UNIT

PHOTO #:12 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010013
DESCRIPTION: COLD STORAGE ROOM

PHOTO #:13 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010015
DESCRIPTION: HAZARDOUS WASTE STORAGE

PHOTO #:14 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010016
DESCRIPTION: USED COOKING OIL

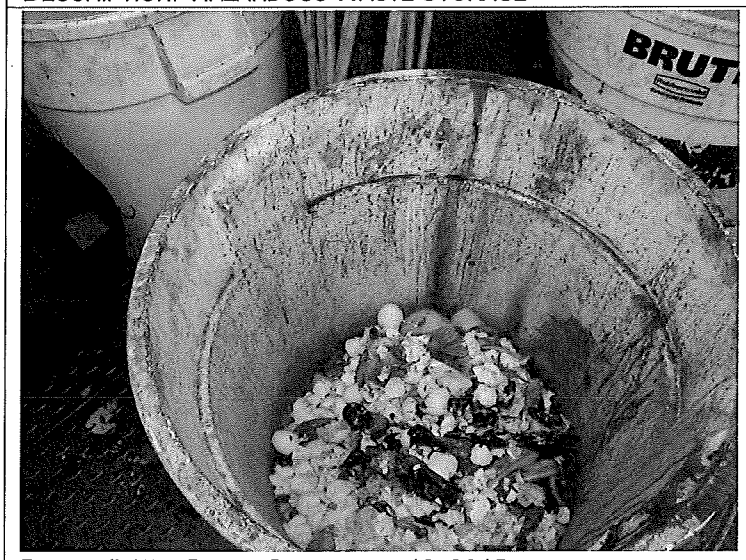

PHOTO #:15 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010017
DESCRIPTION: FOOD WASTE FOR INCINERATION

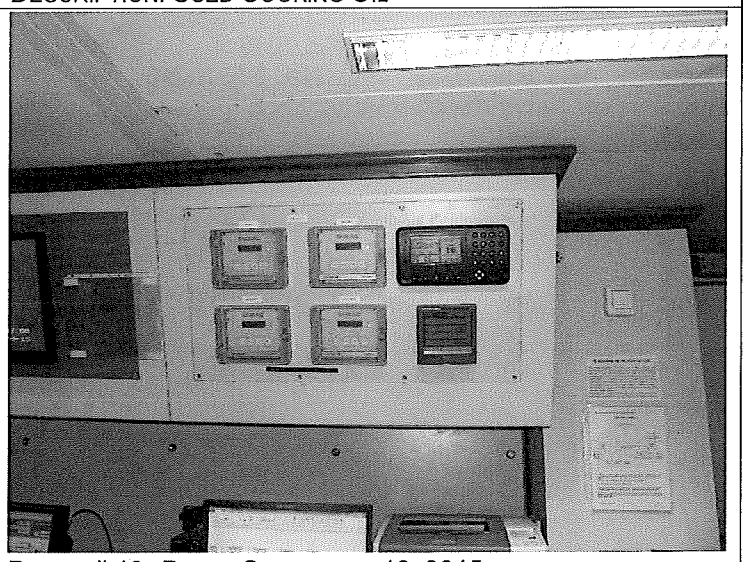

PHOTO #:16 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010018
DESCRIPTION: ENGINE CONTROL ROOM (ECR) OILY BILGE MONITORING

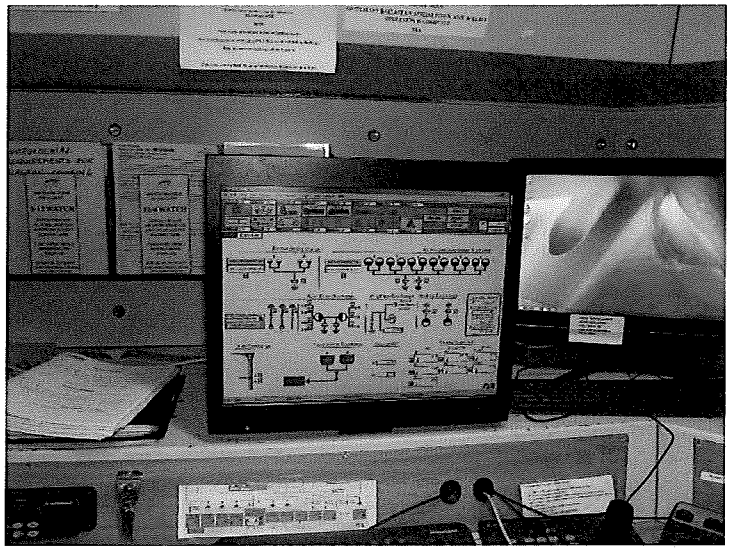

PHOTO #:17 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010019
DESCRIPTION: ECR ENVIRONMENTAL SYSTEMS MONITORING

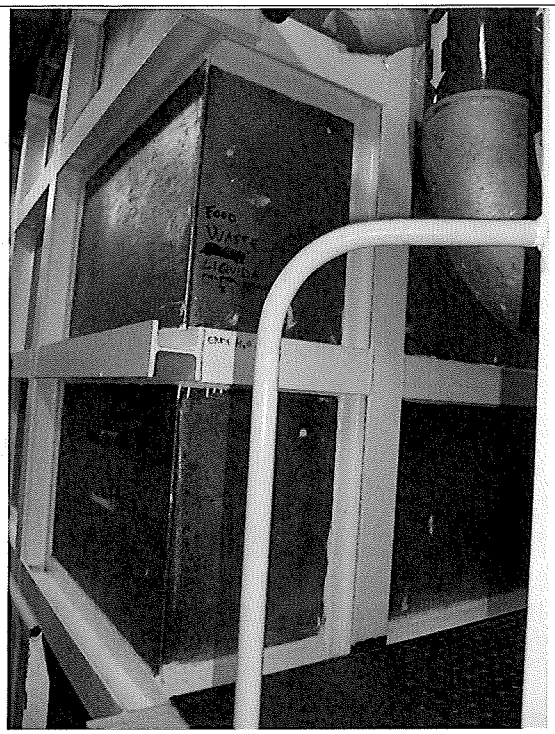

PHOTO #:18 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010023
DESCRIPTION: FOOD WASTE STORAGE TANK

PHOTO #:19 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010028
DESCRIPTION: OILY WATER SEPARATOR (OWS) WHITE BOX

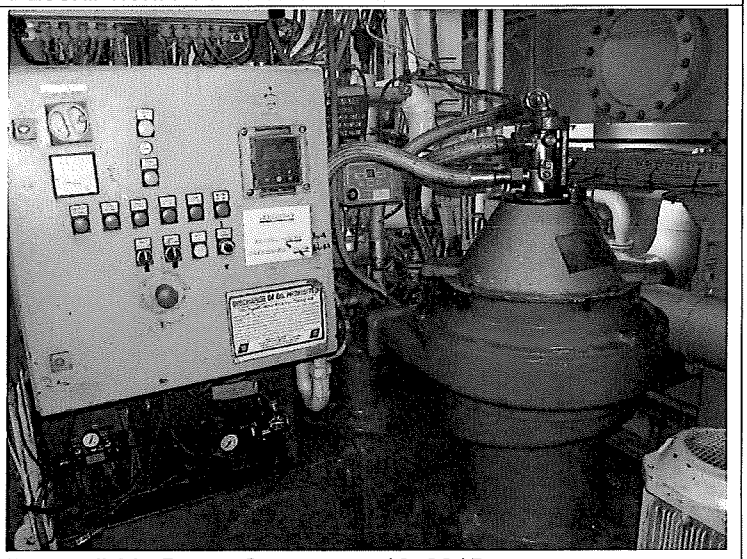

PHOTO #:20 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010029
DESCRIPTION: OWS CENTRIFUGAL SYSTEM

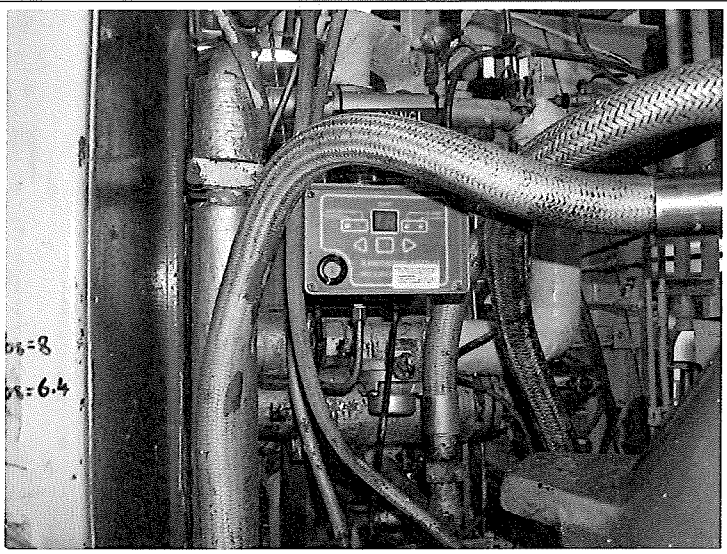

PHOTO #:21 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010030
DESCRIPTION: OWS CENTRIFUGAL OIL CONTENT METER

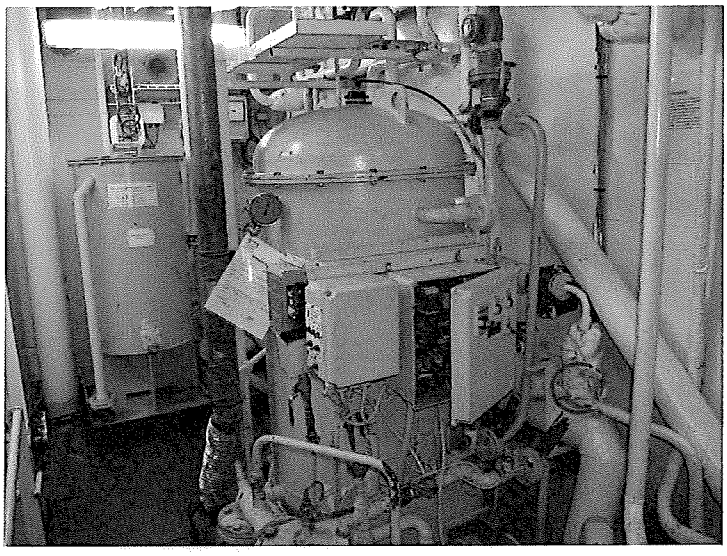

PHOTO #:22 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010031
DESCRIPTION: OWS STATIC SYSTEM

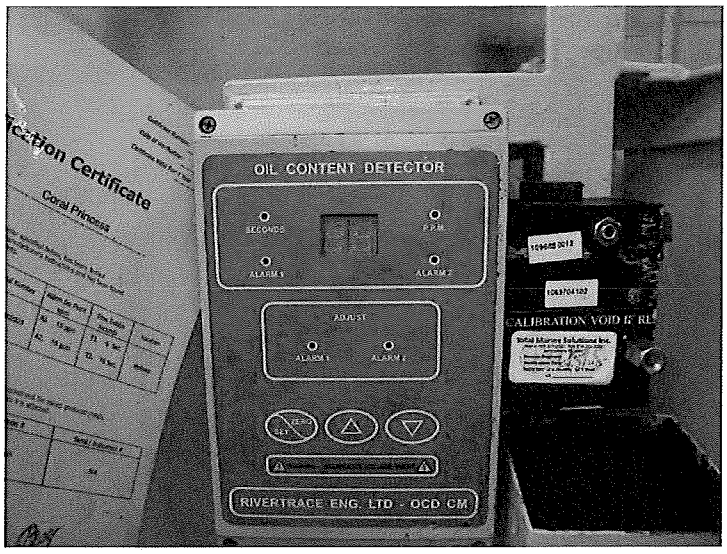

PHOTO #:23 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010032
DESCRIPTION: OWS STATIC OIL CONTENT METER

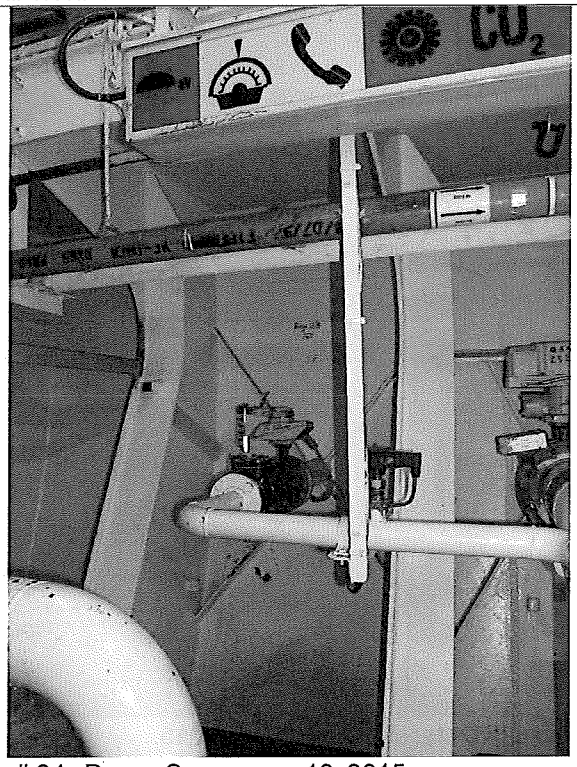

PHOTO #:24 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010021
DESCRIPTION: OILY BILGE OVERBOARD DISCHARGE PORT

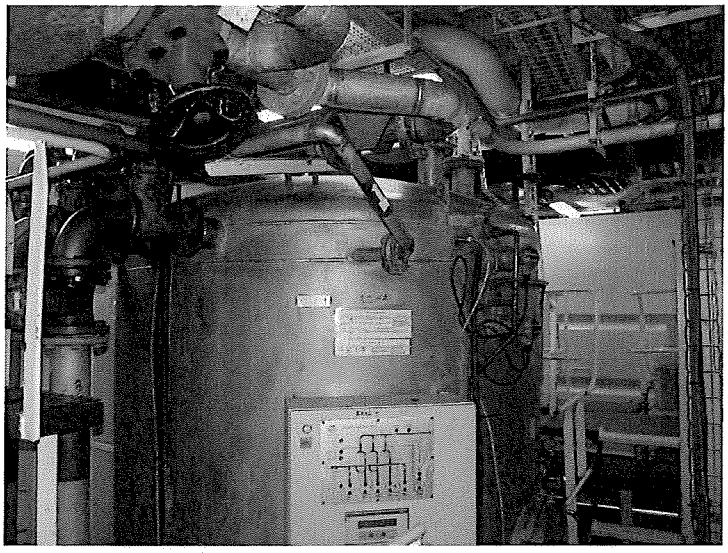

PHOTO #:25 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010024
DESCRIPTION: BLACKWATER EVAC COLLECTION TANK

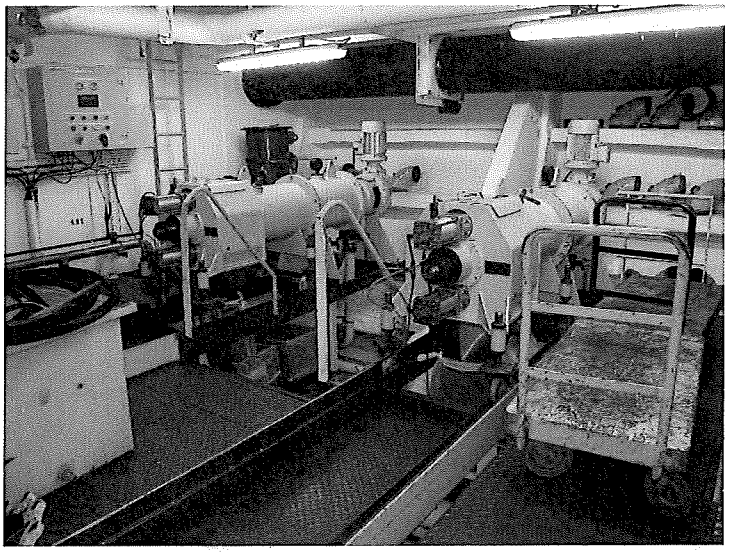

PHOTO #:26 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010033
DESCRIPTION: HAMWORTHY SCREENS

PHOTO #:27 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010027
DESCRIPTION: HAMWORTHY SCREENINGS

PHOTO #:28 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010036
DESCRIPTION: HAMWORTHY MBR TANK (STAGE 1 AND 2) AND MBRS

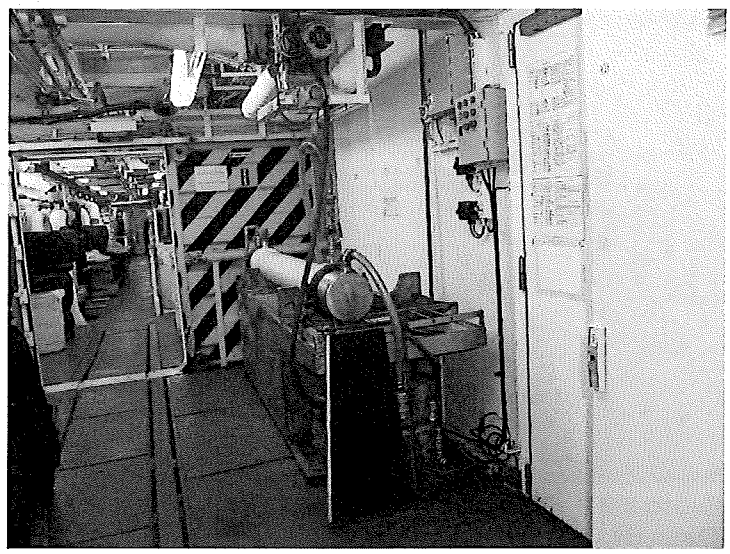

PHOTO #:29 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010035
DESCRIPTION: MBR CLEANING SYSTEM

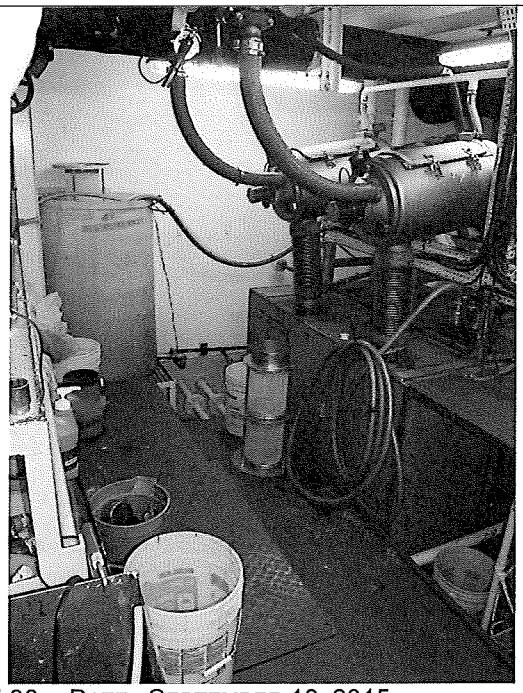

PHOTO #:30 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010038
DESCRIPTION: HAMWORTHY RUSSEL FILTERS

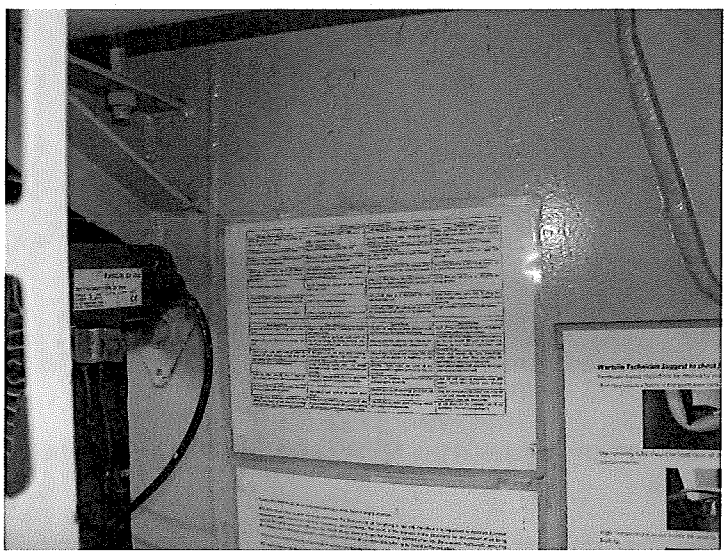

PHOTO #:31 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010040
DESCRIPTION: HAMWORTHY MAINTENANCE TIPS

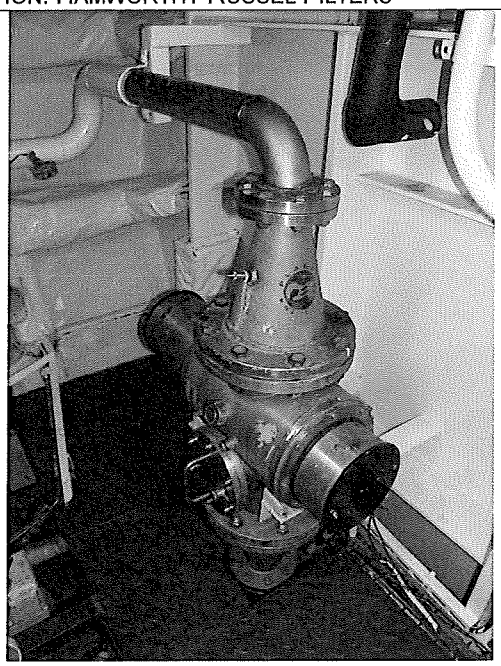

PHOTO #:32 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010042
DESCRIPTION: HAMWORTHY ULTRAVIOLET LIGHT (UV) DISINFECTION SYSTEM

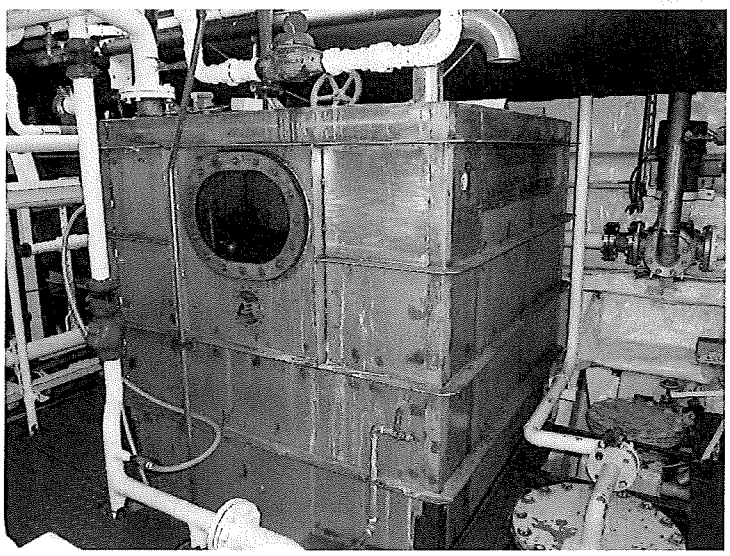

PHOTO #:33 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010041
DESCRIPTION: HAMWORTHY UV PERMEATE TANK

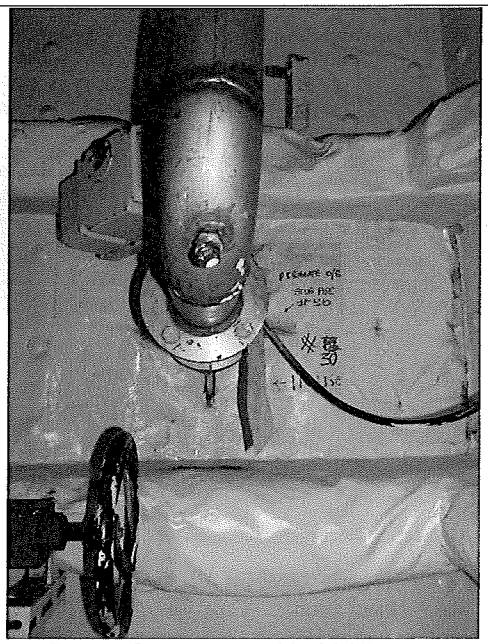

PHOTO #:34 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010043
DESCRIPTION: HAMWORTHY OVERBOARD DISCHARGE PORT

PHOTO #:35 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010045
DESCRIPTION: BALLAST WATER TREATMENT SYSTEM

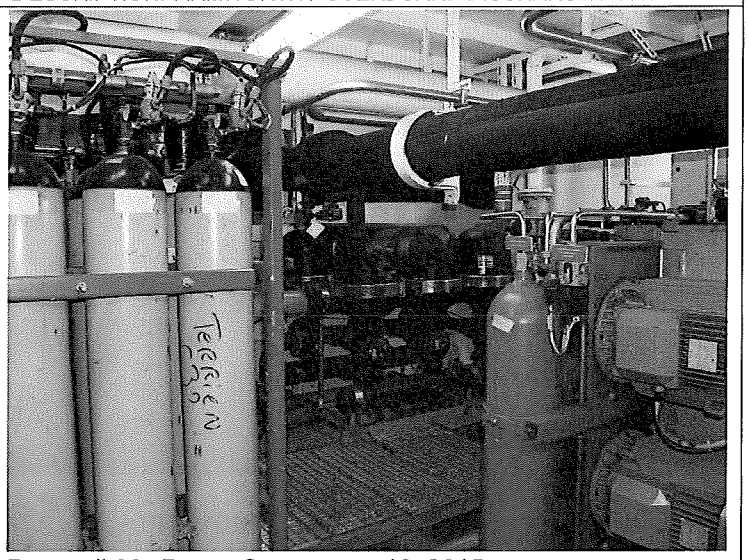

PHOTO #:36 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010046
DESCRIPTION: BALLAST FILTERS (BLACK IN BACKGROUND)

PHOTO #:37 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010047
DESCRIPTION: BALLAST WATER ULTRAVIOLET LIGHT

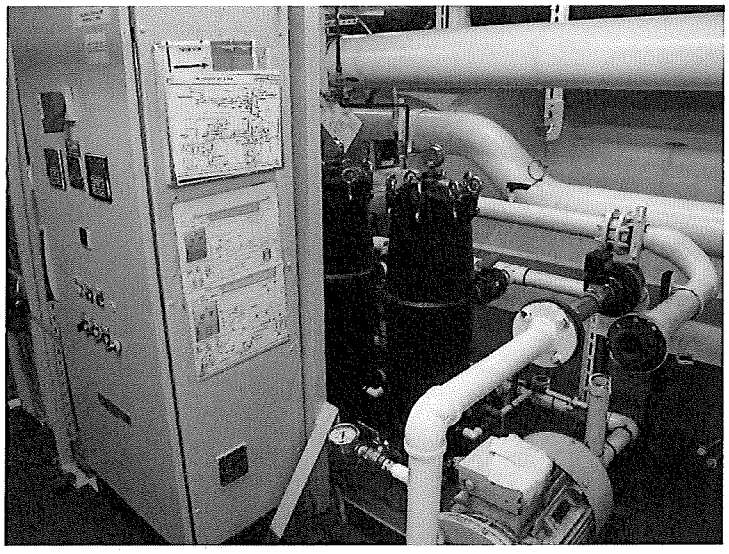

PHOTO #:38 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010048
DESCRIPTION: POOL SYSTEM

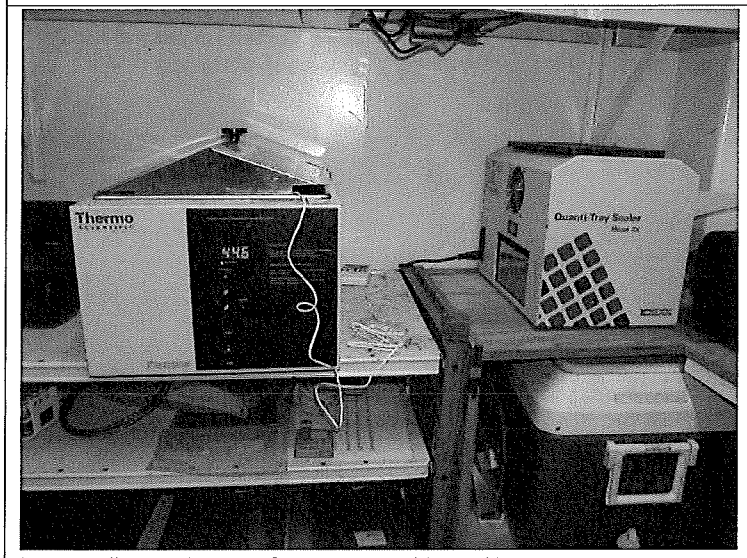

PHOTO #:39 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010049
DESCRIPTION: HAMWORTHY ANALYSIS LABORATORY

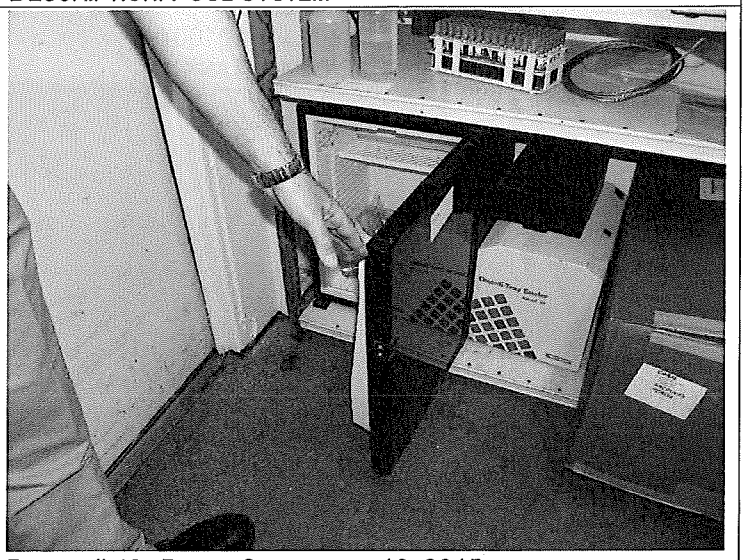

PHOTO #:40 DATE: SEPTEMBER 18, 2015
TAKEN BY: AMY JANKOWIAK FILE NO.: P1010051
DESCRIPTION: HAMWORTHY ANALYSIS LABORATORY

ENV 4.1 Worldwide Cruising Environmental Standards - Washington State - Also Follow USA

No waste or waste water, including MBR permeate is permitted to be discharged in Washington State Waters. This spreadsheet is to be read in conjunction with Fleet Regulations and Fleet Instructional Letters. In the event that there is a conflict within these requirements clarification shall be obtained from the Environmental Operations Director.

Activity	MBR Permeate	Sludge from MBR's & MSD's	Accom, Galley & Laundry Grey Water	Food Waste	Air Emissions
In Port	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Use shore power when possible
Underway	Not Permitted	Not Permitted in Washington State Waters or the Olympic Coast Marine Sanctuary.	Not Permitted in Washington State Waters or the Olympic Coast Marine Sanctuary.	Not Permitted in Washington State Waters or the Olympic Coast Marine Sanctuary.	Incinerator Operation Not Permitted in Elliot Bay - Permitted in other areas
Comments	Permeate that has been held in a DB Tank to be discharged > 4NM & > 6 Knots outside of Washington State Waters	To be discharged >12 NM & > 6 Knots outside of Washington State Waters*. As far as practicable discharge to be in different locations	To be discharged > 4NM & > 6 Knots outside of Washington State Waters*	To be discharged > 12NM & > 6 Knots outside of Washington State Waters*	

Additional Notes

1. Washington State Waters include Puget Sound and the Strait of Juan de Fuca south of the international boundary with Canada; and for off the west coast, the belt of seas measured from the line ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles.

2. The release of non-native aquatic species from in-water cleaning of vessel hulls without an approval from the State is a violation. Severely accumulated biofouling may be considered an illegal release.

TSO ECR.1.20 Sewage and Greywater Discharge Record Book

Vessel: CORAL PRINCESS Official Number: 733720 Month/Year: SEPTEMBER 2015 Page 83

DAY	START TIME	START LAT	START LONG	DISCH PT(s)	EFF TYPE	FLOW (L/MIN)	P-I-C SIGN	DAY	STOP TIME	STOP LAT	STOP LONG	VOL (M/T)	MIN SPD(Kt)	P-I-C SIGN	REMARKS
12 SEP 2015	20:28	59°24.2'N	135°21.6'W	A	TSG	272		13 SEP 2015	04:32	58°10.7'N	134°18.0'W	132	11.4		MBR PERMEATE
13 SEP 2015	17:40 ~~17:55~~	~~134~~ 58°03.4'N	134°03.7'W	A	TSG	221		14 SEP 2015	07:30	55°31.3'N	132°07.0'W	184	18.2		MBR PERMEATE
LE 13 SEP 2015	07:30	IN PORT OF JUNEAU		B	TSG/GW	673		LE 13 SEP 2015	14:58	IN PORT OF JUNEAU		303	—		GW DISCHARG ASHORE
14 SEP 2015	19:25	55°08.9'N	131°10.9'W	A	TSG	204		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	659	14.0		MBR PERMEATE
15 SEP 2015	01:40	53°12.1'N	130°45.0'W	B	TSG/GW	2586		15 SEP 2015	10:20	51°23.1'N	128°33.7'W	150	18.4		GW HOLDING TKS
15 SEP 2015	01:40	53°12.1'N	130°45.0'W	B	GW	320		15 SEP 2015	10:20	51°23.1'N	128°33.7'W	186	18.4		FREE DISCHARG
16 SEP 2015	02:05	49°20.4'N	123°58.1'W	B	TSG GW	320		16 SEP 2015	03:42	49°12.2'N	123°33.2'W	50	12.3		FREE DISCHARG
16 SEP 2015	02:05	49°20.4'N	123°58.1'W	B	TSG GW	2230		16 SEP 2015	03:42	49°12.2'N	123°33.2'W	350	12.3		GW HOLDING TK
16 SEP 2015	19:37	49°19.6'N	123°44.0'W	B	TSG/GW	3200		16 SEP 2015	20:42	49°22.5'N	124°02.6'W	400	11.6		G.W HOLDING TKs
16 SEP 2015	19:37	49°19.6'N	123°44.0'W	B	GW	320		16 SEP 2015	20:42	49°22.5'N	124°02.6'W	40	11.6		FREE DISCHARGE
17 SEP 2015	00:30	49°13.6'N	123°37.5'W	B	TSG/GW	2000		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	90	10.6		G.W. HOLDING TK
17 SEP 2015	00:30	49°13.6'N	123°37.5'W	B	GW	320		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	14	10.6		FREE DISCHARG
17 SEP 2015	05:40	48°29.7'N	123°12.4'W	A	TSG	270		17 SEP 2015	22:13	48°21.9'N	123°25.2'W	268	10.9		MBR PERMEATE

CTO's Signature: _____ Date: _____ Master's Signature: _____ Date: _____

TSO ECR.1.20 Sewage and Greywater Discharge Record Book

Vessel: CORAL PRINCESS Official Number: 733720 Month/Year: SEPTEMBER 2015 Page 83

DAY	START TIME	START LAT	START LONG	DISCH PT(s)	EFF TYPE	FLOW (L/MIN)	P-I-C SIGN	DAY	STOP TIME	STOP LAT	STOP LONG	VOL (M/T)	MIN SPD(Kt)	P-I-C SIGN	REMARKS
12 SEP 2015	20:28	59°24.2'N	135°21.6'W	A	TSG	272		13 SEP 2015	04:32	58°10.7'N	134°18.0'W	132	11.4		MBR PERMEATE
13 SEP 2015	17:40 ~~17:55~~	~~134~~ 58°03.4'N	134°03.7'W	A	TSG	221		14 SEP 2015	07:30	55°31.3'N	132°07.0'W	184	18.2		MBR PERMEATE
LE 13 SEP 2015	07:30	IN PORT OF	JUNEAU	B	TSG/GW	673		LE 13 SEP 2015	14:58	IN PORT OF	JUNEAU	303	—		GW DISCHARGE ASHORE
14 SEP 2015	19:25	55°08.9'N	131°10.9'W	A	TSG	204		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	659	14.0		MBR PERMEATE
15 SEP 2015	01:40	53°12.1'N	130°45.0'W	B	TSG/GW	2586		15 SEP 2015	10:20	51°23.1'N	128°33.7'W	150	18.4		GW HOLDING TKS
15 SEP 2015	01:40	53°12.1'N	130°45.0'W	B	GW	320		15 SEP 2015	10:20	51°23.1'N	128°33.7'W	186	18.4		FREE DISCHARGE
16 SEP 2015	02:05	49°20.4'N	123°58.1'W	B	TSG GW	320		16 SEP 2015	03:42	49°12.2'N	123°33.2'W	50	12.3		FREE DISCHARGE
16 SEP 2015	02:05	49°20.4'N	123°58.1'W	B	TSG GW	2230		16 SEP 2015	03:42	49°12.2'N	123°33.2'W	350	12.3		GW HOLDING TK
16 SEP 2015	19:37	49°19.6'N	123°44.0'W	B	TSG/GW	3200		16 SEP 2015	20:42	49°22.5'N	124°02.6'W	400	11.6		GW HOLDING TKS
16 SEP 2015	19:37	49°19.6'N	123°44.0'W	B	GW	320		16 SEP 2015	20:42	49°22.5'N	124°02.6'W	40	11.6		FREE DISCHARGE
17 SEP 2015	00:30	49°13.6'N	123°37.5'W	B	TSG/GW	2000		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	90	10.6		G.W. HOLDING TK
17 SEP 2015	00:30	49°13.6'N	123°37.5'W	B	GW	320		17 SEP 2015	01:15	49°08.4'N	123°28.9'W	14	10.6		FREE DISCHARGE
17 SEP 2015	05:40	48°29.7'N	123°12.4'W	A	TSG	270		17 SEP 2015	22:13	48°21.9'N	123°25.2'W	268	10.9		MBR PERMEATE

CTO's Signature: _____ Date: _____ Master's Signature: _____ Date: _____