



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

Northwest Regional Office

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 Bellevue, WA 98008

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Inspection Date May 13, 2015	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Amy Jankowiak
Entry Time 9:58 am	Photos Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Inspection Announced <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Discharges to: <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Dewater <input type="checkbox"/> POTW
Exit Time 11:46 am				
Name and Location of Site Inspected: CRYSTAL SYMPHONY, Crystal Cruises Pier 66 Seattle, Washington			Additional Participants/Inspectors:	
On-Site Representative(s): <i>Name/Title/Phone/e-mail</i> Igor Majstorovic, Assistant Chief Engineer Nathan Mills, Vice Captain				
Responsible Official(s): <i>Name/Title/Address/Phone/e-mail</i> William Boehm, Director Safety, Environment & Training Crystal Cruises 11755 Wilshire Blvd, Suite 900 Los Angeles, CA 90025 WBoehm@crystalcruises.com 310-785-9300			Other Facility Data: Notification made to William Boehm on May 11, 2015	

Section A: Areas Evaluated

<input checked="" type="checkbox"/> Black/Gray Wastewater System	<input checked="" type="checkbox"/> Residual Solids	<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Hazardous Waste/ Solid Waste	<input checked="" type="checkbox"/> Sampling/Monitoring
<input checked="" type="checkbox"/> Discharge Locations	<input checked="" type="checkbox"/> Operation & Maintenance	<input checked="" type="checkbox"/> Sludge Handling/ Disposal	<input checked="" type="checkbox"/> Oily Bilge Water	<input checked="" type="checkbox"/> Other

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

<input type="checkbox"/> Schematics Match Black/Gray Wastewater System	
<input type="checkbox"/> Operations as Described in Submitted Documentation	
<input type="checkbox"/> Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
<input type="checkbox"/> Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
<input type="checkbox"/> 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 Shut Down: _____ Recorded Turbidity/Equivalent Levels Above Triggers: _____	
<input type="checkbox"/> Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
<input type="checkbox"/> Disinfection Effectiveness Monitoring Equipment Functioning Properly	
Disinfection Effectiveness Monitoring: _____	
<input type="checkbox"/> Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
<input type="checkbox"/> Disinfection System Operated and Maintained Properly	
Disinfection System: _____	

NOT APPLICABLE

<input checked="" type="checkbox"/>	Solid Waste Managed Properly (zero garbage discharge)	Solid waste appears to be managed per MOU requirements.
<input checked="" type="checkbox"/>	Photo/X-Ray Waste Managed Properly (fluids, cartridges,...) and landed ashore	Photo and x-ray waste appears to be handled per MOU requirements.
<input checked="" type="checkbox"/>	Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	Dry cleaning waste products are managed per MOU requirements.
<input checked="" type="checkbox"/>	Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Unused or outdated pharmaceuticals appear to be managed per MOU requirements.
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Waste reduction/reuse/recycling opportunities appear to be maximized per MOU requirements, which is somewhat limited by the multiple port locations for this vessel.
<input checked="" type="checkbox"/>	Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries appear to be managed per MOU requirements.
<input checked="" type="checkbox"/>	Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash appears to be managed per MOU requirements.
<input checked="" type="checkbox"/>	Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge water appears to be managed per MOU requirements.
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	OCNMS rules and regs followed	The discharge protocol appears to be consistent with MOU requirements to not occur in the OCNMS.

Additional General Questions

<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	Outside vessel maintenance appears to be handled per MOU requirements.
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	How are food waste discharges handled (prevention of erroneous materials)?	Food waste appears to be handled per MOU requirements.
<input checked="" type="checkbox"/>	Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical sinks/floor drains appear to be handled per MOU requirements.
<input checked="" type="checkbox"/>	Where is pool and spa water discharged? Dechlorinated/debrominated and underway?	Pool and spa water appears to be handled per MOU requirements.
<input checked="" type="checkbox"/>	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)	NOT APPLICABLE
Total Suspended Solids (TSS)	
Fecal Coliform	
Residual Chlorine	
pH	
Ammonia, Nitrogen	

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 Crystal Cruises CRYSTAL SYMPHONY on May 13, 2015. The main contacts on board the CRYSTAL SYMPHONY were Igor Majstorovic, Assistant Chief Engineer and Nathan Mills, Vice Captain for the CRYSTAL SYMPHONY. Prior notification of the visit was given on May 11, 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 CRYSTAL SYMPHONY is not approved to discharge wastewater in MOU waters.

The CRYSTAL SYMPHONY's inaugural cruise was in 1995, and is 781 feet long with 12 decks. Passenger capacity is currently about 950, with about 600 crew.

The CRYSTAL SYMPHONY is scheduled for this one port call in Seattle. The vessel arrived from its one visit to Alaska and stopping in Vancouver, BC and Victoria prior to Seattle and it next goes to Astoria, Oregon and onto California. The vessel does not typically conduct regular cruises to Alaska.

Crystal Cruises is in the process of being acquired by Genting Hong Kong (GHK) and the CRYSTAL SYMPHONY will change ownership as soon as the vessel is outside of international waters after leaving Seattle.

Inspection

I arrived and boarded the ship (photo #01) at 9:58 am and first met with the Captain and Nathan Mills, Vice Captain. We briefly discussed the purpose and plan for the inspection. Mr. Mills provided records related to the EPA Vessel General Permit (VGP). We then met with Igor Majstorovic, Assistant Chief Engineer who then led the rest of the inspection/tour for the CRYSTAL SYMPHONY. The vessel does not have a dedicated Environmental Officer and the environmental aspects are shared amongst officers and engineering staff. We first went to the Engine Control Room (ECR) and went through discharge protocols and waste management. We then reviewed records, sewage and graywater logs and garbage records. We then toured the oily water separator, the marine sanitation devices (MSD), discharge ports, the garbage and recycling room, incineration, food waste systems and dry cleaning. We finished the inspection with final questions on the Bridge regarding navigation and completed the inspection with a debriefing with the Captain and Vice Captain. I disembarked the vessel at 11:46 am.

Discharge Types and Protocols:

All discharges to water occur outside of 12 nautical miles (with the exception of graywater in some cases – which can be > 4 miles except in Prohibited Areas), outside of MOU waters, Washington State waters and the Olympic Coast National Marine Sanctuary (OCNMS) (MOU related waters). If a discharge is to occur, there is an established written protocol and standing order in place for communications between the bridge and the ECR to assure that discharges only occur when > 12 miles and outside prohibited areas. A copy of the checklist is attached. Discharge ports are padlocked and the keys are in the ECR and the Port Engineer unlocks the port and reports that the opening and closing to the Engineer on Watch. 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 and the previous day were reviewed and appeared to be in compliance with the MOU and did not occur in MOU related waters. The OCNMS was verified as being on the navigation maps and their itinerary takes them outside of the OCNMS as they journey south.

The MSD does not produce much biomass due to its quality of biological treatment. Any solids collected are sent to the incinerator.

Oily bilge water is treated with a Turbulo oily water separator (OWS) process (photo #02). The oily content meter (photo #04) measures oil content and discharges (photo #05) occur at less than 15 parts per million (ppm) and outside of MOU related waters. The meter calibration was posted (photo #03) and up to date and the system was checked by USCG by opening up the pipes to ensure that the 3-way valves were directed correctly, which they were.

The CRYSTAL SYMPHONY has 1 Jacuzzi which is fresh water/bromine and 2 pools, both seawater and chlorinator. Jacuzzi water is emptied to the graywater tanks. Water from the pools and spa are dechlorinated prior to any overboard discharge. Any discharges are outside of MOU related waters.

The CRYSTAL SYMPHONY doesn't exchange ballast water and uses fresh or graywater for ballast.

Food waste (photo #24) is sorted at the source in each of the four galleys and is then sent to the food pulper in the each galley (photos #26 and #27). Liquid from the pulper is sent to an economizer tank and to graywater tanks. Solid food waste that is not pulped is either incinerated (photo #25) or sent ashore as garbage. Grease is collected to a grease tank

and discharged outside MOU related waters. The old garbage/food chute has been sealed off for non use (photo #20). Galleys use Ecolab phosphate free and non-toxic detergents and degreasers. Galley floor drains (photo #28) go to the graywater tanks.

Hull cleaning is not done in MOU related waters. Any deck runoff is collected by the scuppers and sent to graywater tanks for discharge at Sea. Paint chipping and painting is not done in Seattle. No outside vessel maintenance was being done at the time of the inspection.

Records for the VGP were viewed and include overboard inspections, quarterly inspections, annual dry dock inspections and other related documentation.

Laundry water is sent to the graywater collection tanks and Ecolab phosphate free and non-toxic detergents and degreasers are used. Dry cleaning uses a perchloroethylene (Perc) system (photos #29 and #30) with the Perc waste offloaded as hazardous waste.

No offloads of wastes occurred during the one Seattle port call.

X-rays are done digitally and therefore do not have a waste product. Photo waste is collected and offloaded as hazardous waste. Fluorescent bulbs along with other bulbs are collected and offloaded ashore without crushing as hazardous waste. Hazardous waste materials typically include items such as used cartridges and filters, bulbs, paints, thinners, chemicals, incinerator ash, and batteries. Bio-hazardous waste and medical waste is collected and incinerated. Hazardous waste is stored until offloaded.

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

Solid waste (garbage, recyclables, etc) is sorted at the source and is collected and sorted in the garbage and recycling room (photo #19) and is either reused, recycled, incinerated or offloaded to shore as appropriate. Glass that is crushed (photo #22), some cardboard (photo #21), compacted aluminum and cans (photo #23), some plastics, some paper, and other items are recycled. Garbage records were reviewed and appear to be in compliance with the MOU.

Some food contaminated materials, most cardboard, medical bagged waste, residuals from the MSD, and some plastics are incinerated. Incinerator ash is offloaded as hazardous waste as is tested once every 6 months. Records were reviewed and verified. Incinerators are used beyond three miles and 2 hours before or after port (whichever comes first). Opacity is measured electronically and visually.

The CRYSTAL SYMPHONY uses fuel with a sulfur content of about 0.0010%. The vessel was not bunkering fuel at this port call. Fresh water was being bunkered.

Black water System (photo #16):

Blackwater, which includes toilet waste is treated by one of two USCG certified Triton-Format MSDs. Discharges take place outside of MOU related waters. The Black/ Gray Water Discharge Record book was reviewed and there were no discharges in MOU related waters coming from Vancouver/Victoria to Seattle.

Black water is collected by vacuum to collection tanks (photo #06) and is then sent to either the 91.0 m3/day capacity MSD (photos #08 and #13) or the 45.5 m3/day capacity MSD (photo #14). Any solids are screened into bags and are then sent to the incinerator. Defoamer (photo #07) is used prior to entering the MSD. The system is aerated with a blower system and some Bio ET SC biodegrader (photos #11 and #12) is used for biological activity. The liquid is then disinfected with liquid chlorine by a dosing system (photos #09, #10, and #15). Flow then goes to holding tanks if not in an area of discharge (photos #17 and #18). The MSD is routinely checked and the pumps and maintained. The effluent is occasionally sampled (not required) and results were reported to be normal. Graywater is discharged untreated outside of MOU related waters. Graywater is also occasionally sampled.

Conclusions and Recommendations

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

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

Attachments:

Photographs

Wastewater Discharge Checklist

Black/Graywater Discharge Record Book logs for May 12, 2015 through the time of the inspection

Copies to:

Nathan Mills, Vice Captain, CRYSTAL SYMPHONY

Igor Majstorovic, Assistant Chief Engineer, CRYSTAL SYMPHONY

Mark Toy, Health

Greg Wirtz, CLIA-NWC

Stephanie Jones Stebbins, Port of Seattle

Kevin Fitzpatrick, Ecology

Mark Henley, Ecology

Amy Jankowiak, Ecology

Central Files: Crystal Cruises – CRYSTAL SYMPHONY; WQ 6.1

<p><u>Name and Signature of Inspector:</u> Amy Jankowiak </p>	<p><u>Agency/Office/Telephone:</u> Department of Ecology Northwest Regional Office Water Quality Program Municipal Compliance Specialist 425-649-7195</p>	<p><u>Date</u> 5/28/15</p>
<p><u>Name and Signature of Reviewer:</u> Mark Henley </p>	<p><u>Agency/Office/Telephone:</u> Department of Ecology Northwest Regional Office Municipal Unit Supervisor 425-649-7103</p>	<p><u>Date</u> 5/28/15</p>



PHOTO #:01 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130406
DESCRIPTION: CRYSTAL SYMPHONY, PIER 66 SEATTLE



PHOTO #:02 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130409
DESCRIPTION: TURBULO OILY WATER SEPARATOR (OWS)

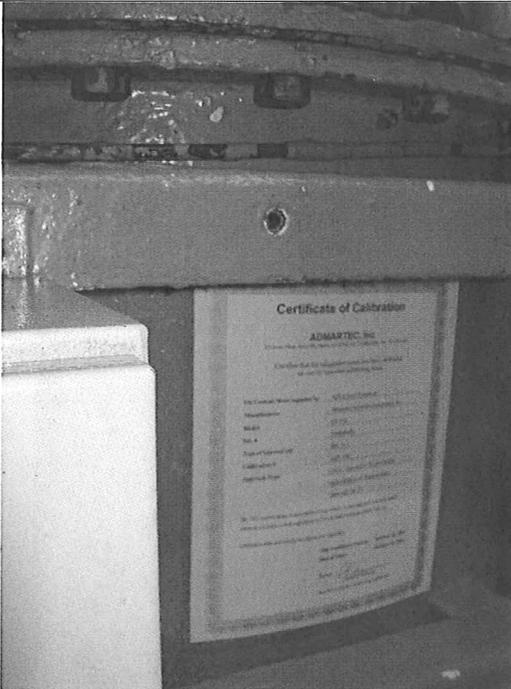


PHOTO #:03 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130410
DESCRIPTION: OWS CALIBRATION CERTIFICATE



PHOTO #:04 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130411
DESCRIPTION: OWS OIL CONTENT METER (OWS DISCHARGE
OFF DURING INSPECTION)

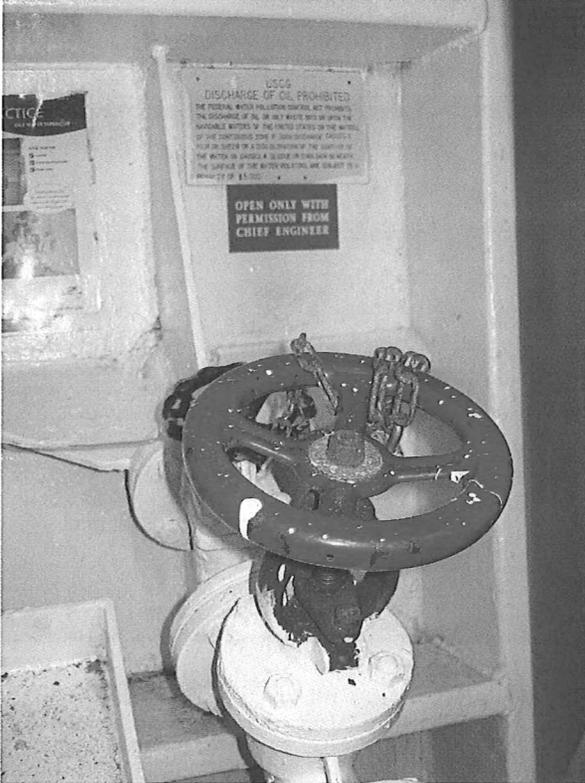


PHOTO #:05 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130412
DESCRIPTION: OWS DISCHARGE PORT

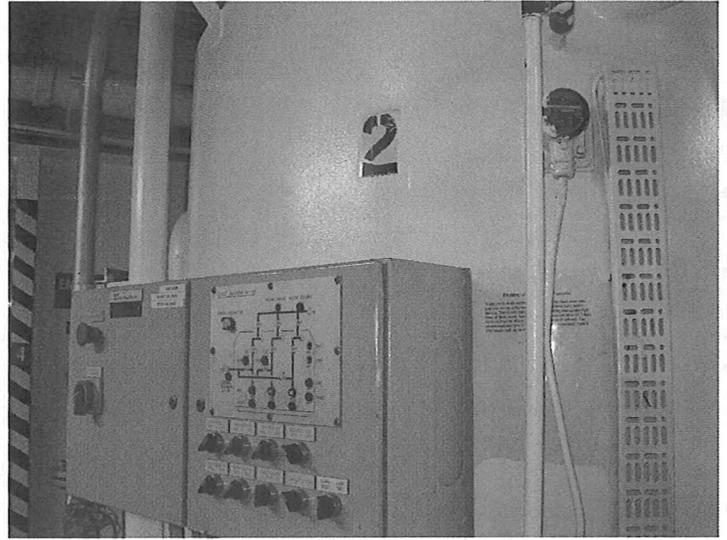


PHOTO #:06 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130407
DESCRIPTION: EVAC COLLECTION TANK FOR BLACKWATER
MARINE SANITATION DEVICE (MSD)

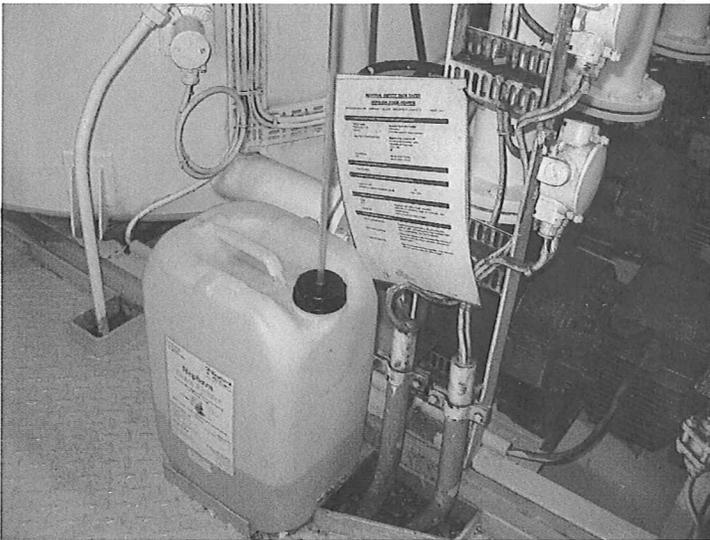


PHOTO #:07 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130408
DESCRIPTION: MSD DEFOAMER

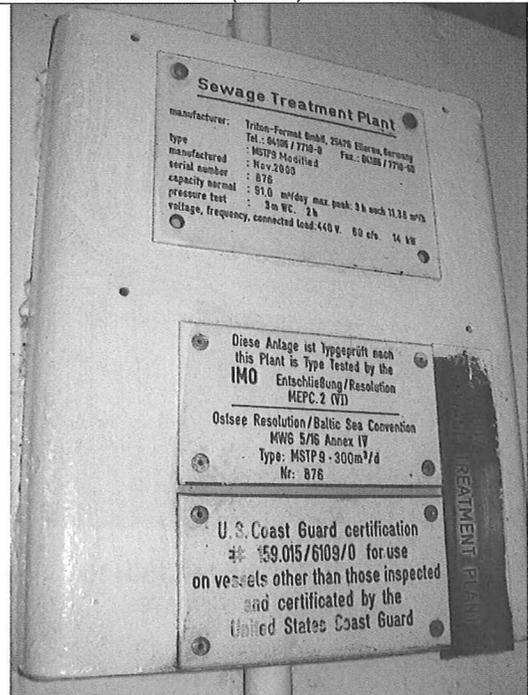


PHOTO #:08 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130414
DESCRIPTION: TRITON-FORMAT MSD 1 (91 M3/DAY)

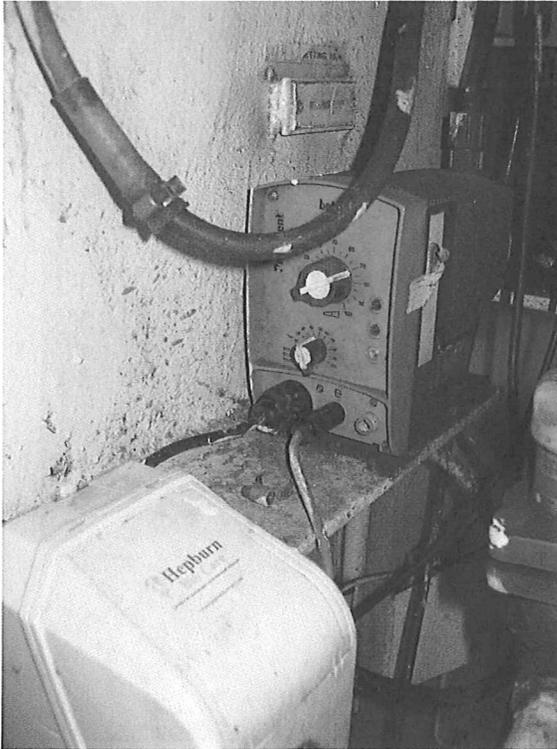


PHOTO #:09 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130415
DESCRIPTION: MSD 1 CHLORINE DOSING SYSTEM



PHOTO #:10 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130418
DESCRIPTION: MSD 1 CHLORINE



PHOTO #:11 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130416
DESCRIPTION: MSD 1 BIO ET SC (BIODEGRADER)

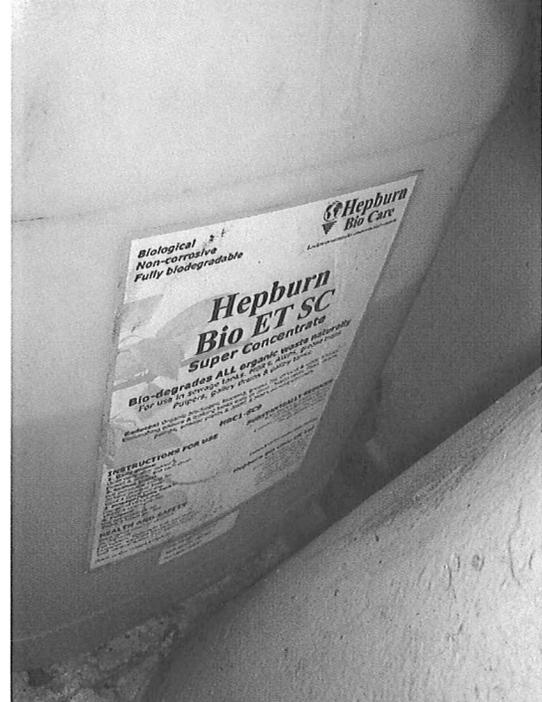


PHOTO #:12 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130417
DESCRIPTION: MSD 1 BIO ET SC (BIODEGRADER)

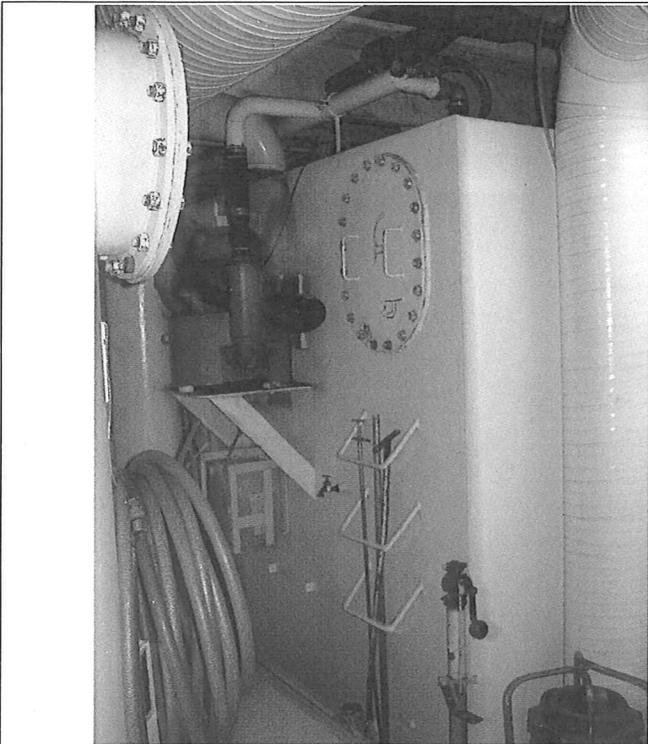


PHOTO #:13 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130420
DESCRIPTION: MSD 1 TANK

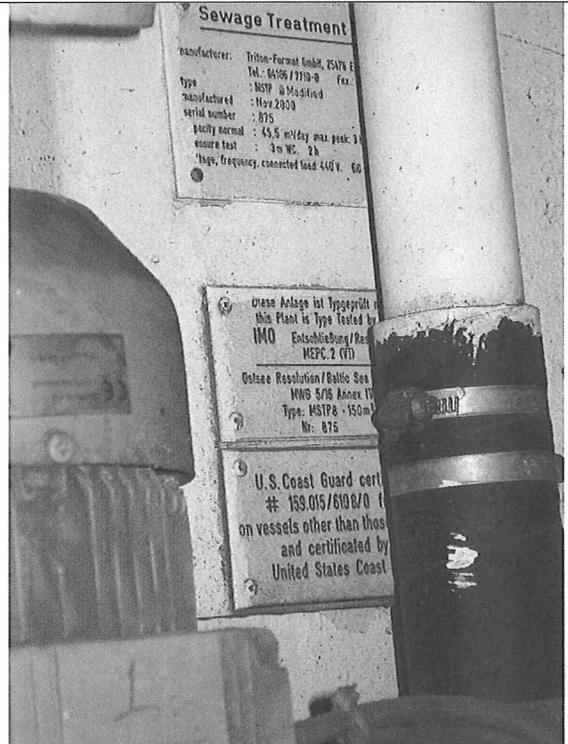


PHOTO #:14 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130422
DESCRIPTION: TRITON-FORMAT MSD 2 (45.5 M3/DAY)

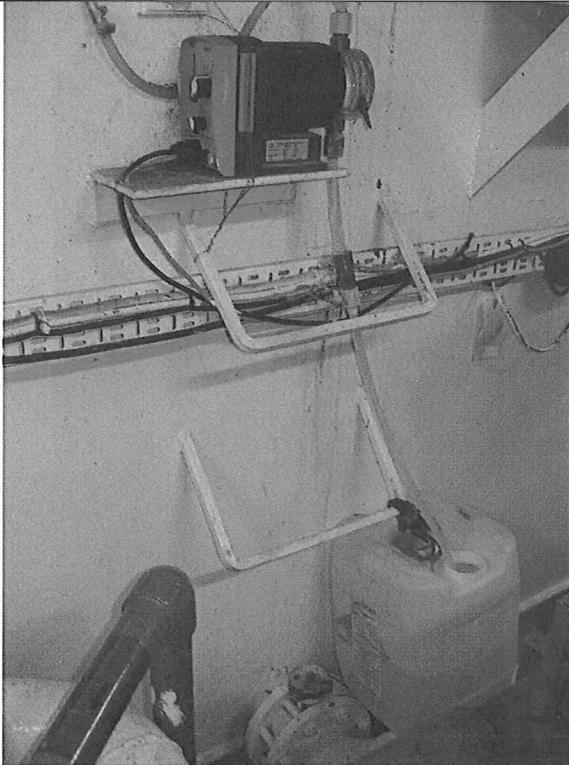


PHOTO #:15 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130423
DESCRIPTION: MSD 2 CHLORINE DOSING SYSTEM

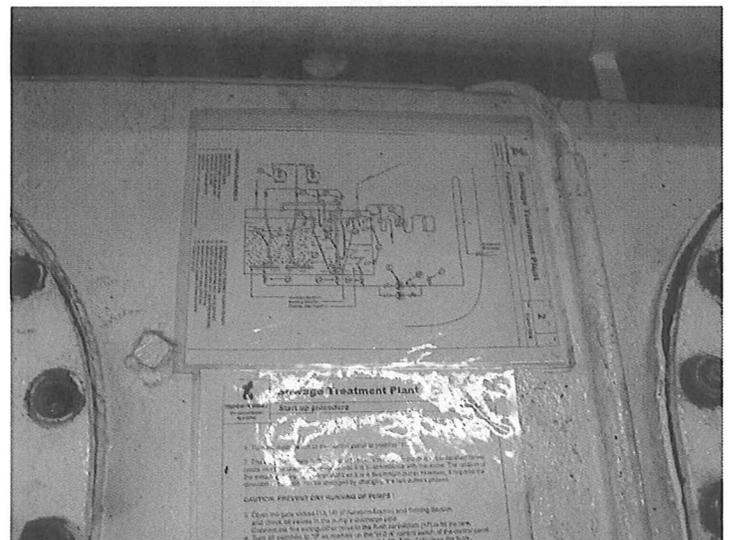


PHOTO #:16 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130424
DESCRIPTION: MSD 2 FUNCTIONAL DIAGRAM

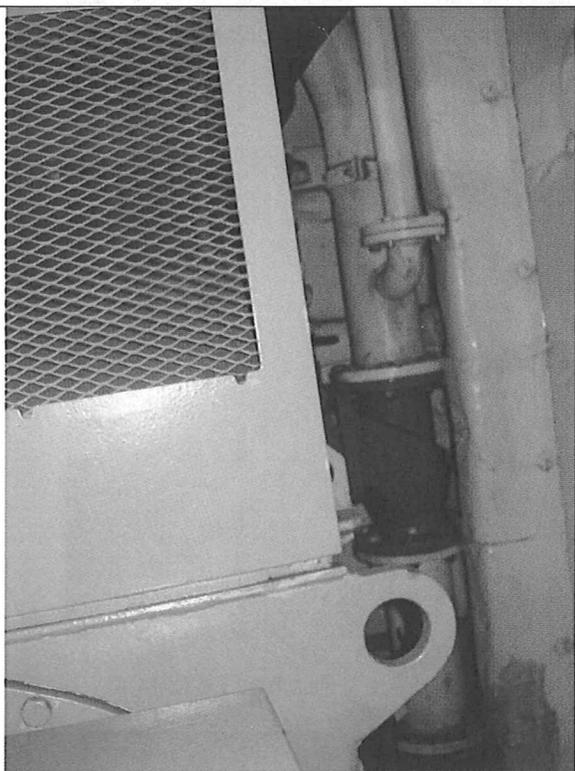


PHOTO #:17 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130425
DESCRIPTION: MSD DISCHARGE LINES

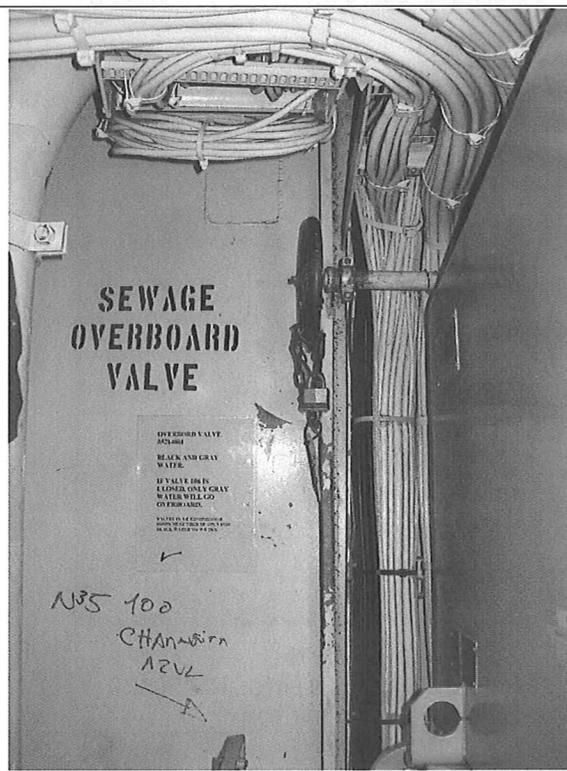


PHOTO #:18 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130426
DESCRIPTION: MSD DISCHARGE PORT



PHOTO #:19 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130427
DESCRIPTION: GARBAGE FOR INCINERATION/INCINERATION LOADING



PHOTO #:20 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130428
DESCRIPTION: OLD SEALED OFF GARBAGE CHUTE



PHOTO #:21 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130429
DESCRIPTION: CARDBOARD COMPACTOR

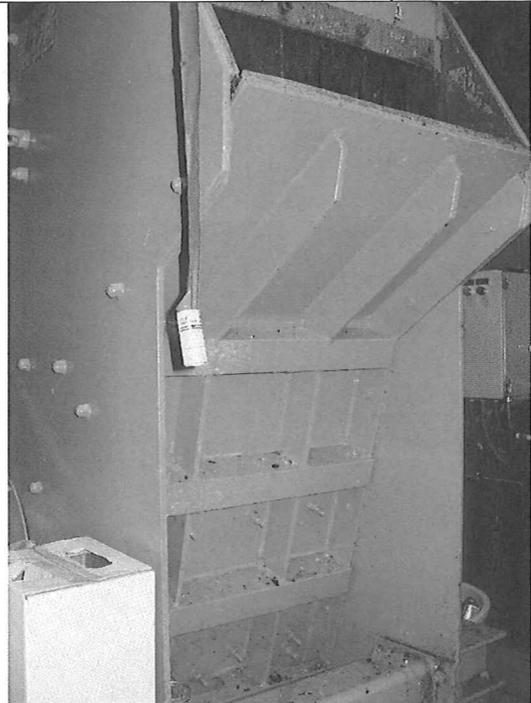


PHOTO #:22 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130430
DESCRIPTION: GLASS CRUSHER



PHOTO #:23 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130431
DESCRIPTION: CAN COMPACTOR

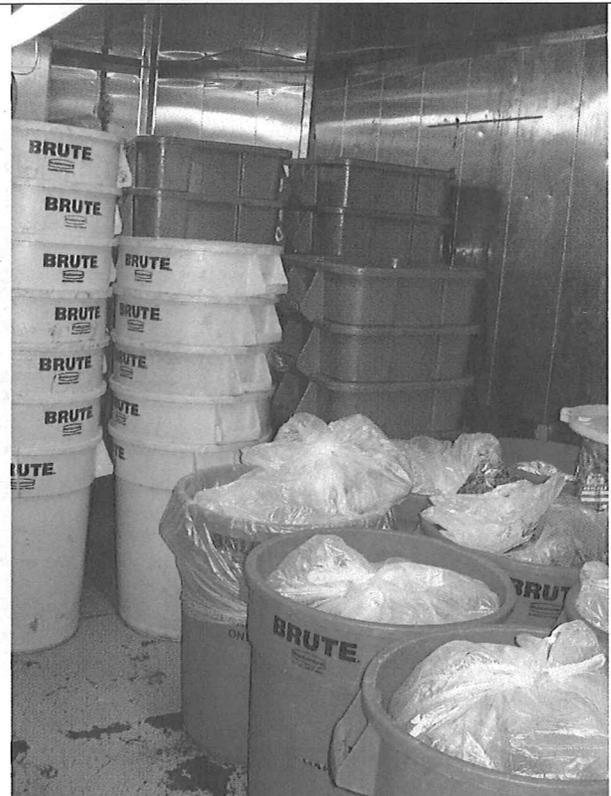


PHOTO #:24 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130432
DESCRIPTION: FOOD WASTE COLD STORAGE

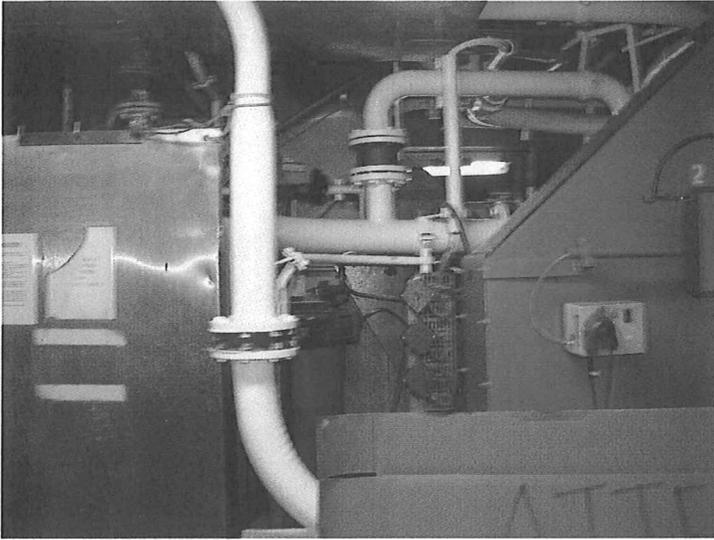


PHOTO #:25 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130433
DESCRIPTION: FOOD WASTE PULPER TO INCINERATOR

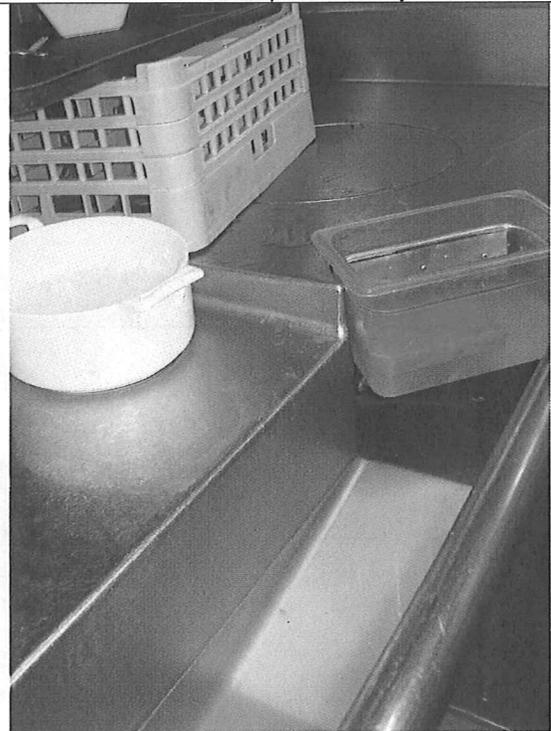


PHOTO #:26 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130434
DESCRIPTION: PULPER IN MAIN GALLEY



PHOTO #:27 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130435
DESCRIPTION: PULPER SYSTEM IN MAIN GALLEY

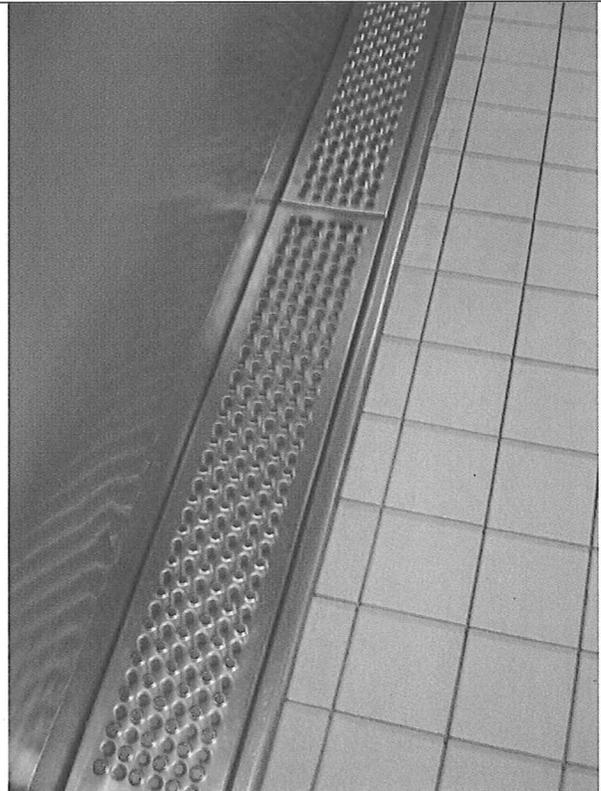


PHOTO #:28 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130436
DESCRIPTION: GALLEY FLOOR DRAINS

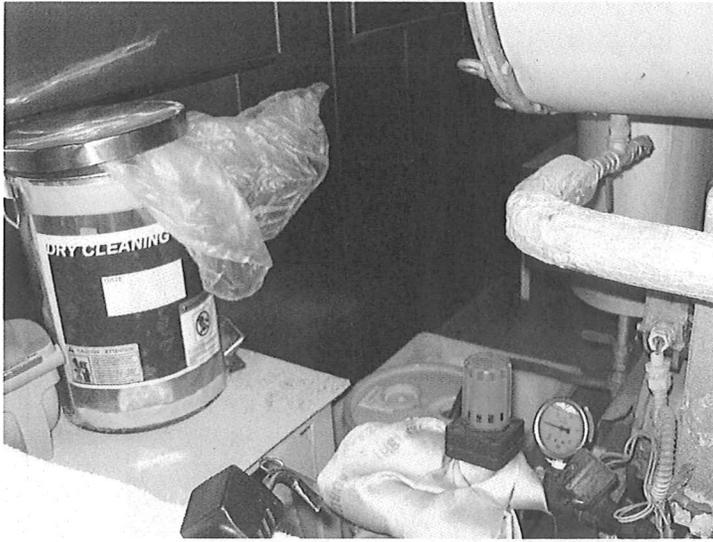


PHOTO #:29 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130437
DESCRIPTION: DRY CLEANING SYSTEM

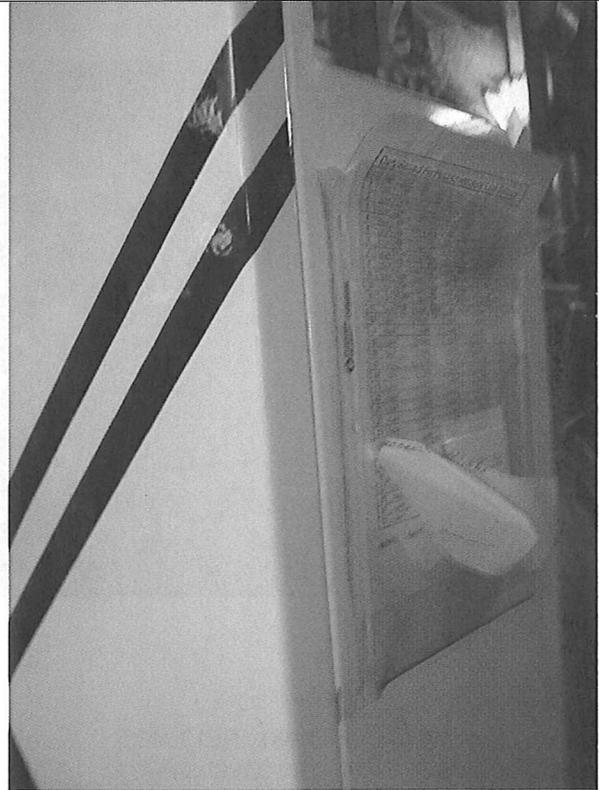


PHOTO #:30 DATE: MAY 13, 2015
TAKEN BY: AMY JANKOWIAK FILE No.: P5130438
DESCRIPTION: DRY CLEANING DAILY PERCHLOROETHYLENE LEAK
DETECTOR RECORD

Wastewater Discharge Checklist	Appendix (2)	Revision 3	Effective Date 29 July 2014
		Prepared By: J. Diep	Approved By T. Mazloum

APPENDIX (2) - WASTEWATER DISCHARGE CHECKLIST

This document is attached as a separate form in SharePoint.

 CRYSTAL CRUISES			
Waste Management Manual			
Wastewater Discharge Checklist	Appendix (2)	Revision 3	Effective Date 21 July 2014
		Prepared By: J. Diep	Approved By: T. Mazloum

APPENDIX (2) - WASTEWATER DISCHARGE CHECKLIST

Grey and Black Water Discharge Checklist

Departing Port or In Transit

Engine Officer of the Watch (Eng OOW)		Deck Officer of the Watch (Dk OOW)	
1. Msg	Receive call from Dk OOW Notify Chief Engineer OR Assistant Chief Engineer SEE NOTE BELOW	1. Call ECR	Advise when more than 12 miles from land. Notify Captain OR Vice Captain SEE NOTE BELOW
2. Msg	Receive request from from OOW to pump grey and/or black water overboard.	2. Call ECR	Request ECR to pump grey and/or black water overboard.
3 - 4. Msg	Receive approval authorization details	3. Verify and Confirm to ECR	a. Position beyond 12 miles or outside Prohibited Areas.
			b. Speed 6 knots of more. a. OK to discharge - grant approval to discharge, specify tanks to discharge and provide location and name of person granting permission to discharge.
5. Action	Permission GRANTED – Continue.	4. Log	Time, location, name of person granting permission.
6. Log	Time, position & person granting permission.	5-7.	Standby
7. Valves	a. Unlock and open shell valves.	8. Position	a. Receive call from Eng OOW.
	b. Line up pumps as needed.		b. Provide position to Eng OOW.
	c. Ready to commence discharge.	9. Log	Position & time of commence discharge.
8. Call Bridge	Advise ready to discharge, request position.		
9. Log	a. Engine Log – time, position & person granting permission. b. Sewage & Gray water Record – location, time, etc.		
10.	Commence discharge.		
END.		END.	

NOTE REGARDING ITEM 1: Either the Captain OR Vice-Captain, and the Chief Engineer OR Assistant Chief Engineer must be notified of that step in the process. The method of notification (call, text, personal visit, etc.) is at the Captain and Chief Engineer's discretion, however in all cases there must be notification made. When it is known that these events will take place at night or during one of the aforementioned officers' rest hours, specific written guidance should be provided in advance to the deck watch officer and engine watch officer as to whom to contact.



Waste Management Manual

Sample Black/ Gray Water
Discharge Record Book

Appendix (5)

Revision
2

Effective Date
14 September 2011

Prepared By: T. Schlerf

Approved By: T. Mazloum

Voyage Leg 5210		FROM (Port): KETCHIKAN		TO (Port): VANCOUVER						
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START	11.05.15	03:02	49° 21.7' N	124° 00.7' W	A/C	ONLY G.W.	325	3540	12	Z/E MUSAFA
STOP	11.05.15	04:05	49° 17.7' N	123° 35.2' W			223			Z/E PERUON
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
	#2.									
	Date: 11.05.2015									
	Date: 11.05.2015									

Voyage Leg 5210		FROM (Port): KETCHIKAN		TO (Port): VANCOUVER						
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START	11.05.15	03:02	49° 21.7' N	124° 00.7' W	A	ONLY G.W.	20	325	12	Z/E MUSAFA
STOP	11.05.15	04:05	49° 17.7' N	123° 35.2' W						Z/E PERUON
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
	Date: 11.05.2015									
	Date: 11.05.2015									

Voyage Leg 5211		FROM (Port): VANCOUVER		TO (Port): VICTORIA						
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START	12.05.15	01:11	45° 14.7' N	123° 26.7' W	B/C	G.W.	572	2417	12	Z/E MUSAFA
STOP	12.05.15	02:23	48° 59.0' N	123° 21.7' W		ONLY	174			Z/E MUSAFA
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
	Date: 12.05.2015									
	Date: 12.05.2015									

Chief Engineer's Signature: _____ Date: 12/5-15 Master's Signature: _____ Date: 13/5/15



Waste Management Manual

Sample Black/ Gray Water
Discharge Record Book

Appendix (5)

Revision
2

Effective Date
14 September 2011

Prepared By: T. Schlerf

Approved By: T. Mazloun

Voyage Leg 5211

		FROM (Port): VANCOUVER			TO (Port): VICTORIA					
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START	12-05-15	01:11	49° 14.7' N	123° 26.7' W	A	GW ONLY	23	325	12	2/E MUSAFA
STOP	12-05-15	02:23	48° 59.6' N	123° 21.7' W						2/E MUSAFA
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
A 870										
Sign: _____ Date: 12-05-2015										

Voyage Leg

		FROM (Port):			TO (Port):					
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START										
STOP										
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
Sign: _____ Date: _____										

Voyage Leg

		FROM (Port):			TO (Port):					
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	DISCHARGE PORT(S)	EFFLUENT TYPE	VOLUME (M3)	FLOW RATE (L/MIN)	MINIMUM SPEED (Kts)	PERSON-IN-CHARGE Position/Name:
START										
STOP										
REMARKS	Treatment Type for TS: Biological/chemical Type II MSD									
Sign: _____ Date: _____										

Chief Engineer's Signature: _____ Date: _____ Master's Signature: _____ Date: _____

