



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 09/26/2011	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Amy Jankowiak
Entry Time 8:55 am Exit Time 11:08 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
Name and Location of Site Inspected: CELEBRITY INFINITY, Celebrity Cruises Pier 66 Seattle, Washington				Additional Participants/Inspectors: Mark Henley, P.E., Ecology
On-Site Representative(s): <i>Name/Title/Phone/e-mail</i> Nikolaos Alvanos, Environmental Officer IN_ENVIRONMENTALOFFICER@CELEBRITY.COM				
Responsible Official(s): <i>Name/Title/Address/Phone/e-mail</i> Rich Pruitt, Director Environmental Programs Royal Caribbean International 1080 Caribbean Way, Miami, FL 33132 Office: 305-982-2179; Cell: 305-495-2845; RPruitt@rocl.com				Other Facility Data: Notification made to Rich Pruitt on September 22, 2011

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 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 Shutdown: Recorded Turbidity/Equivalent Levels Above Triggers:	NOT APPLICABLE
<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:	

Section C: For Vessels Discharging Continuously [2.1.3(B)]

<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	
	<p><u>Turbidity or Equivalent:</u></p> <p>Last Calibration:</p> <p>Trigger Level for Early Alarm:</p> <p>Trigger Level for Shutdown:</p> <p>Recorded Turbidity/Equivalent Levels Above Triggers:</p>	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
<input type="checkbox"/>	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	<u>Disinfection Effectiveness Monitoring:</u>	
<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	
	<u>Disinfection System:</u>	

Section D: General (Approved to Discharge)

<input type="checkbox"/>	No Discharges Within 1/2 Miles From Shellfish Beds/ Protocol (President's Point, Apple Tree Cove, Tyece Shoal, Middle Point (near Pt Townsend))	
<input type="checkbox"/>	Discharges Immediately Stopped When High Turbidity Occurs	
<input type="checkbox"/>	Discharges Immediately Stopped When Disinfection System Upset Occurs	
<input type="checkbox"/>	Immediate Notifications Made to WA Department of Health for Disinfection System Upset	
<input type="checkbox"/>	Sampling Conducted 2/month, 1/month in Seattle (BOD, TSS, Fecal Coliform, pH, Chlorine Residual)	
<input type="checkbox"/>	Whole Effluent Toxicity Testing 1 per 2 Years (homeported) or 1/40 Calls for Continuous	

Section E: General

<input checked="" type="checkbox"/>	Wastewater Discharge Records Review	Discharge records were reviewed (blackwater/graywater/residual solids) and are maintained properly. All discharges occurred outside of MOU waters. The discharge policy is to not discharge any treated or untreated blackwater or graywater in waters of the MOU, within 12 nm from land, in the OCNMS or in special areas.
<input checked="" type="checkbox"/>	Wastewater Discharges protocol per MOU and managed properly	The discharge protocol for wastewater includes the bridge notifying the Engine Control Room (ECR) when they are 12 nautical miles from land (outside of MOU waters and outside of the OCNMS). Navigation charts on the bridge clearly identifies the OCNMS and locations. Communications of discharge are tracked by log and an excel discharge start/stop log. A discharge policy is also displayed. There is one key to the padlocked discharge ports kept in the ECR and the use is logged.
<input checked="" type="checkbox"/>	Residual Solids Managed Properly/Disposal Protocol per MOU	Screenings are incinerated and sewage sludge is discharged outside of 12nm and outside the OCNMS.
<input checked="" type="checkbox"/>	Hazardous Waste Managed Properly	Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. Hazardous waste was offloaded in

	Seattle in July and then in Victoria for the rest of the season. Burlington Environmental/PSC Environmental Service managed the waste in Seattle. Records were reviewed and appear to be managed properly. Materials such as paints, PERC, photo waste filters, sharps, mercury filters, some batteries and other materials were offloaded.
<input checked="" type="checkbox"/> WA Hazardous Waste Guidelines Followed (Appendix vii)	Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. Hazardous waste was offloaded in Seattle in July and then in Victoria for the rest of the season. Burlington Environmental/PSC Environmental Service managed the waste in Seattle. Records were reviewed and appear to be managed properly.
<input checked="" type="checkbox"/> Solid Waste Managed Properly (zero garbage discharge)	Solid waste is managed properly. The various solid waste streams are collected, sorted, stored, and sent ashore or incinerated as appropriate. The garbage record book was reviewed and showed consistency with requirements. Glass is recycled and not discharged.
<input checked="" type="checkbox"/> Photo/X-Ray Waste Managed Properly (fluids, cartridges,...) and landed ashore	Waste from the photo processing is collected, processed with a silver recovery system, drummed and offloaded. X-rays are done digitally.
<input checked="" type="checkbox"/> Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	Dry cleaning currently uses Perchloroethylene (PERC) which is collected and off-loaded as hazardous waste. Laundry water is sent to the treatment system.
<input checked="" type="checkbox"/> Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Expired and unused medications are incinerated or offloaded to a vendor. Narcotics are incinerated with witness.
<input checked="" type="checkbox"/> Fluorescent and Mercury Vapor Lamp Bulbs Managed Properly (prevent release of mercury)	Fluorescent lamps are crushed on board with a mercury vapor removal system, and then offloaded.
<input checked="" type="checkbox"/> Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Glass is recycled and not discharged. Plastics, paper, electronics, cardboard, glass, aluminum, some batteries and metals are materials recycled. Reduction and reuse opportunities are broadly used to prevent the amount of waste. Recycling is offloaded in Victoria.
<input checked="" type="checkbox"/> Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries are collected, sorted and binned to be offloaded and recycled when possible.
<input checked="" type="checkbox"/> Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash is offloaded and tested annually. Results have passed. Incinerators are turned off four nautical miles before getting into Port and back on after leaving port and 4 nm. Incinerators are not used in the OCNMS. Records were reviewed. Oily rags, Biohazardous waste, food-contaminated cardboard and other materials are incinerated.
<input checked="" type="checkbox"/> Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge is treated with a Marin Floc oily water separator system. Discharges occur at less than 15 ppm and outside of MOU waters. A white box is used to prevent discharges of more than 15 ppm.
<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)	Full ballast exchanges only occur at sea beyond 200 nm or if within zone, greater than 50 nm per regulation. Records showed consistency.
<input checked="" type="checkbox"/> OCNMS rules and regs followed	No discharges occur in OCNMS waters per protocol and records review showed consistency.
Additional General Questions	
<input checked="" type="checkbox"/> How is deck runoff and hull cleaning handled (scuppers...) (non-toxic/phosphate free cleaners, biodegradable)	Hull cleaning is probably not done while in Seattle and fresh water is used.
<input checked="" type="checkbox"/> How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	Outside vessel maintenance is not done in Seattle, but when they do so in other locations, drop cloths are used in low wind conditions with a bucket for paint chips and other BMPs.
<input checked="" type="checkbox"/> Sculleries and Galleys – type of detergents and degreasers used (phosphate free and non-toxic)?	Phosphate free, non-toxic cleaners are used in the galleys.
<input checked="" type="checkbox"/> How are food waste discharges handled (prevention of erroneous materials)?	Food waste is sorted prior to going into the pulpers. Solid food waste is discharged outside of MOU waters after pulping. Some materials are incinerated. Galley water is discharged outside of MOU waters. Used cooking oil is recycled in Seattle.
<input checked="" type="checkbox"/> Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical floor drains go to the blackwater collection tanks. Biohazardous wastes are collected and incinerated. Sharps are off-

loaded with hazardous waste.

Where is pool and spa water discharged?
Dechlorinated/debrominated and underway?

Pool water which uses filtered sea water is discharged out at sea, outside of MOU waters. Jacuzzi water is discharged to the graywater collection tanks daily.

What type of fuel is used and percent sulfur content?

Fuel of approximately 0.001% is used while in the Port of Seattle and approximately 3.2%-4.5% is used otherwise.

Other:

Section F: Sampling Results

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

Section G: Summary of Findings/Comments

Introduction

Amy Jankowiak, Washington State Department of Ecology (Ecology) Northwest Regional Office, Water Quality Program (NWRO-WQ) along with Mark Henley, NWRO-WQ conducted the inspection of the Celebrity Cruises CELEBRITY INFINITY on September 26, 2011. The main contact on board the CELEBRITY INFINITY was Nikolaos Alvanos, Environmental Officer for the CELEBRITY INFINITY. Prior notification of the visit was given on September 22, 2011 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 CELEBRITY INFINITY is not approved to discharge in MOU waters. The vessel has not been discharging and is holding effluent until outside MOU waters.

The CELEBRITY INFINITY was placed into service in 2001 and is 965 feet long with an estimated 2200 passengers and 960 crew.

The CELEBRITY INFINITY is scheduled for 20 port calls in Seattle and conducts one week cruises to Alaska turning around on mostly on Fridays between May 10, 2011 and September 26, 2011.

Inspection

We arrived and boarded the ship at about 8:55 am and began with introductions and a plan for the day with Nikolaos Alvanos, Environmental Officer. We discussed various waste streams and discharge protocols. We then went to the Bridge and to the Engine Control Room (photo #06) to review navigation, notification protocols, and discharge protocols. We reviewed the various discharge and environmental records. We then toured the Garbage and Recycling Areas, and the galley and food waste system. Next we toured the Advanced Wastewater Treatment System (AWTS) and the oily water separator. The inspection was then finalized with a debriefing and we disembarked the vessel at about 11:08 am.

Discharge Types and Protocols:

The discharge protocol for wastewater includes the bridge notifying the Engine Control Room (ECR) when they are 12 nautical miles (nm) from land, outside of MOU waters, and outside of the Olympic Coast National Marine Sanctuary (OCNMS). Navigation charts on the bridge (photos #02 and #03) clearly identifies the OCNMS and locations. Communications of discharge are tracked by log and an excel discharge start/stop log (photo #04). A discharge policy (photo #05) is also displayed. There is one key to the padlocked discharge ports kept in the ECR and the use is logged.

For blackwater and graywater, the latitude and longitude coordinates are recorded in the *Sewage and Graywater Discharge Record Book* and in the deck log. 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. All wastewater discharge records that were reviewed appeared to be in compliance with the MOU. Discharge records were reviewed (blackwater, graywater, and residual solids) and are maintained properly. All discharges occurred outside of MOU waters. The discharge policy is to not discharge any treated or untreated blackwater or graywater in waters of the MOU, within 12 nm from land, in the OCNMS or in special areas.

Screenings from the AWTS are incinerated and sewage sludge is discharged outside of 12nm and outside the OCNMS.

No discharges occur in OCNMS waters per protocol and records review showed consistency.

Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. Hazardous waste was offloaded in Seattle in July and then in Victoria for the rest of the season. Burlington Environmental/PSC Environmental Service managed the waste in Seattle. Records were reviewed and appear to be managed properly. Materials such as paints, aerosols (photo #12), PERC, photo waste filters, sharps, mercury filters, some batteries and other materials were offloaded.

Waste from the photo processing is collected, processed with a silver recovery system, drummed and offloaded. X-rays are done digitally.

Dry cleaning currently uses Perchloroethylene (PERC) which is collected and off-loaded as hazardous waste. Laundry water is sent to the treatment system.

Solid waste is managed properly. The various solid waste streams are collected, sorted, stored (photo #14), and sent ashore or incinerated as appropriate. The garbage record book was reviewed and showed consistency with requirements. Glass is recycled (photo #07) and not discharged.

Plastics, paper, electronics, cardboard (photo #09), glass, aluminum, some batteries and metals are materials recycled (photo #13). Reduction and reuse opportunities are broadly used to prevent the amount of waste. Recycling is offloaded in Victoria.

Batteries are collected, sorted and binned to be offloaded and recycled when possible.

Expired and unused medications are incinerated or offloaded to a vendor. Narcotics are incinerated with witness.

Medical floor drains go to the blackwater collection tanks. Biohazardous wastes are collected and incinerated. Sharps are off-loaded with hazardous waste.

Fluorescent lamps are crushed (photo #08) on board with a mercury vapor removal system, and then offloaded.

Incinerator ash is offloaded and tested annually. Results have passed. Incinerators are turned off four nm before getting into Port and back on after leaving port and 4 nm. Incinerators are not used in the OCNMS. Records were reviewed. Oily rags, Biohazardous waste, food-contaminated cardboard and other materials are incinerated.

Oily bilge is treated with a Marin Flocc oily water separator system (photos #29 and #30). Discharges (photos #26 and #27) occur at less than 15 ppm and outside of MOU waters. A white box (photo #28) is used to prevent discharges of more than 15 ppm.

Full ballast exchanges only occur at sea beyond 200 nm or if within zone, greater than 50 nm per regulation. Records showed consistency.

Hull cleaning is probably not done while in Seattle and fresh water is used.

Outside vessel maintenance is not done in Seattle, but when they do so in other locations, drop cloths are used in low wind conditions with a bucket for paint chips and other BMPs.

Phosphate free, non-toxic cleaners are used in the galleys.

Food waste is sorted (photos #10 and #15) prior to going into the pulpers. Solid food waste is discharged outside of MOU waters after pulping (photo #11). Some materials are incinerated. Galley water is discharged outside of MOU waters. Used cooking oil is recycled in Seattle.

Pool water which uses filtered sea water is discharged out at sea, outside of MOU waters. Jacuzzi water is discharged to the graywater collection tanks daily.

Fuel of approximately 0.001% is used while in the Port of Seattle and approximately 3.2%-4.5% is used otherwise.

The bridge had the notification requirements per the MOU posted (photo #01).

Zenon Advanced Wastewater Treatment System (AWTS):

The advanced wastewater treatment system, Zenon, consists of two separate membrane bioreactors. Black water, which includes toilet waste and infirmity drains is collected by vacuum to black water collection tanks. Gray water, which includes sink and shower water, and laundry water is collected to gray water collection tanks. The gray water and black water then combine just as they enter the screening units (drum screens) (photo #16). The initial screenings are incinerated. Solids from the screening unit first go to the wasting tank and are then held for discharge or go to the old Haaman traditional MSD to further break down the residue prior to discharge.

The liquid from the screening units moves to the bioreactors (photos #17 and #21). The MBRs use blowers (photo #18) to enhance biological activity. The membrane bioreactors are cleaned automatically (photo #19) about once every three hours with citric acid or chlorine and hand cleaned about once every three months. Solids that are wasted from the MBRs periodically are sent to the wasting tank. Effluent from the MBRs is combined and sent to the ultraviolet disinfection unit (photos #22, #23, #24 and #25). After UV, the effluent is sent to permeate holding tanks if not in an area for discharge. When discharging, effluent from the holding tanks goes through another UV system prior to discharge. The UV systems have lighted alarms when bulbs go out and alarms for intensity and overheating.

Sampling is done for process control on board the vessel. Parameters include total suspended solids, chemical oxygen demand, biochemical oxygen demand, chlorine and total coliform. There are turbidity meters on each bioreactor with alarms, although not all meters are working properly (photo #20). Sampling for compliance is also done once per month as needed with an outside contractor.

There was some confusion over whether or not the Zenon AWTS is on and operating at all times or only when in certain areas such as Alaskan waters. It appears that the system may be on continuously, but holding discharges in MOU waters.

The Zenon AWTS is reported by on-board staff to not be working right and is defective. The membranes should be replaced about once every three years and are in need of replacement. Staff reported that it is too expensive and therefore haven't been changed. Staff also reports that the entire system will likely be replaced by a Hydroxyl system.

Conclusions and Recommendations

Discharge protocols were clear.

The Zenon AWTS does not appear to be functioning properly and is in need of replacement. It is our understanding that the cruise line has made a commitment to advanced wastewater systems as an example of the company's policy of continual environmental improvement. It is important that the investments into the systems work to protect water quality.

Attachments:

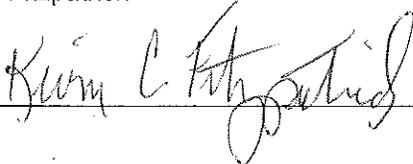
Photographs

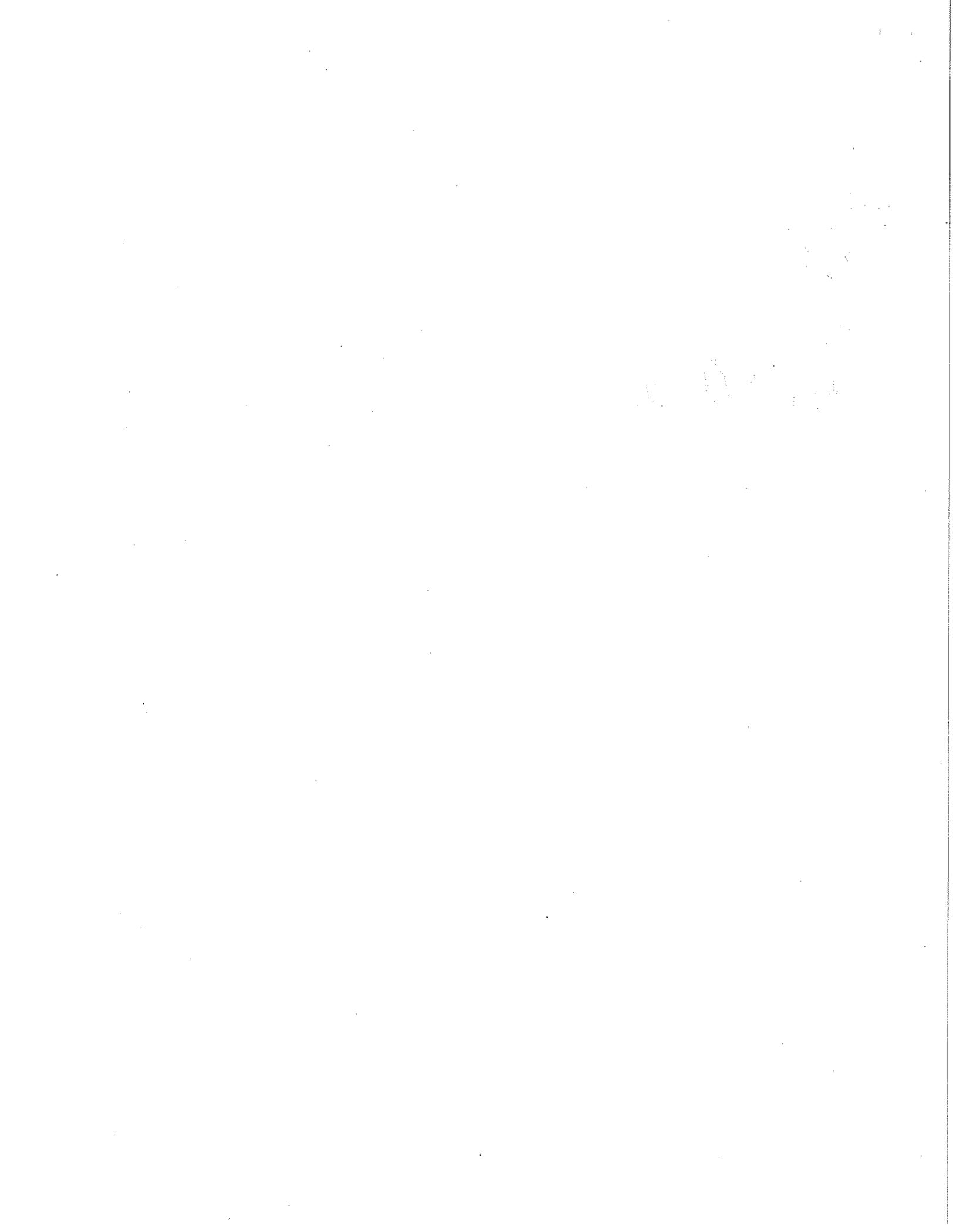
Copies to:

Nikolaos Alvanos, Environmental Officer, CELEBRITY INFINITY
Rich Pruitt, RCI
Mark Toy, Department of Health
Greg Wirtz, NWCCA
Mark Henley, Ecology
Kevin Fitzpatrick, Ecology
Amy Jankowiak, Ecology

Central Files: Celebrity Cruises – CELEBRITY INFINITY; WQ 6.1

Section H: Signatures

<u>Name and Signature of Inspector:</u>	<u>Agency/Office/Telephone:</u>	<u>Date</u>
Amy Jankowiak 	Department of Ecology Northwest Regional Office Water Quality Program Municipal Compliance Specialist 425-649-7195	10/24/11
Mark Henley, P.E. 	Department of Ecology Northwest Regional Office Water Quality Program Acting Municipal Unit Supervisor 425-649-7103	10/24/11
Kevin C Fitzpatrick 	Department of Ecology Northwest Regional Office Water Quality Section Manager 425-649-7033	10/25/11



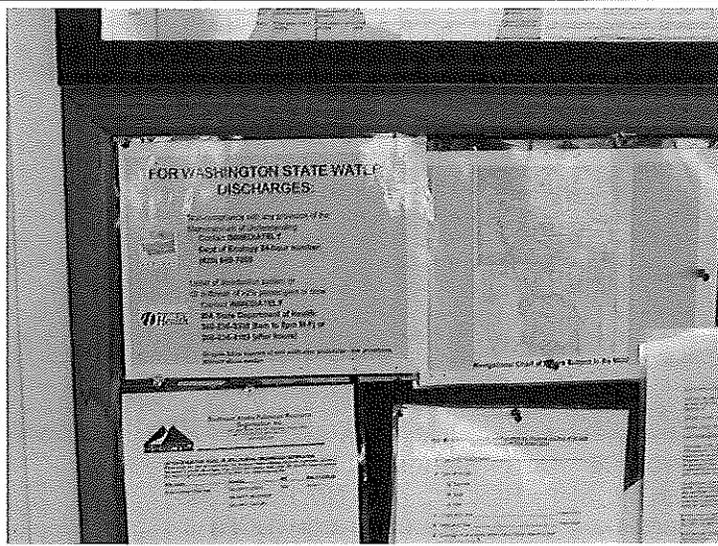


PHOTO #:01 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260001
DESCRIPTION: NOTIFICATION TO ECOLOGY/HEALTH POSTINGS ON THE BRIDGE

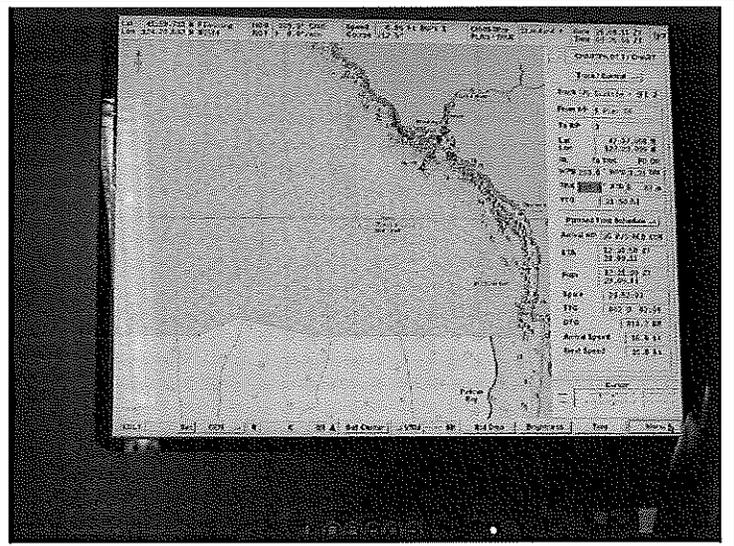


PHOTO #:02 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260002
DESCRIPTION: NAVIGATION CHARTS ON THE BRIDGE

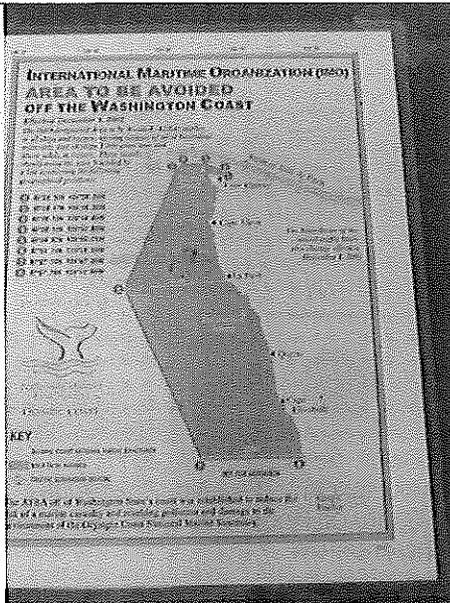


PHOTO #:03 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260003
DESCRIPTION: OCNMS MAP ON THE BRIDGE

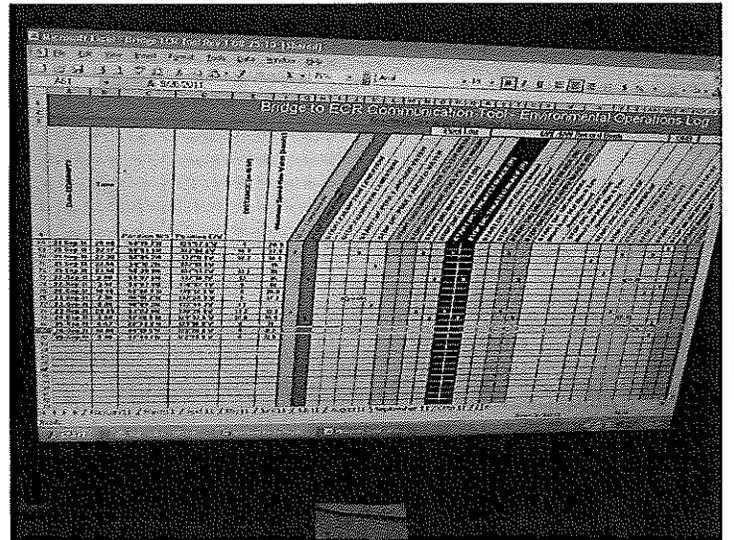


PHOTO #:04 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260004
DESCRIPTION: EXCEL DISCHARGE START/STOP IN EO OFFICE.

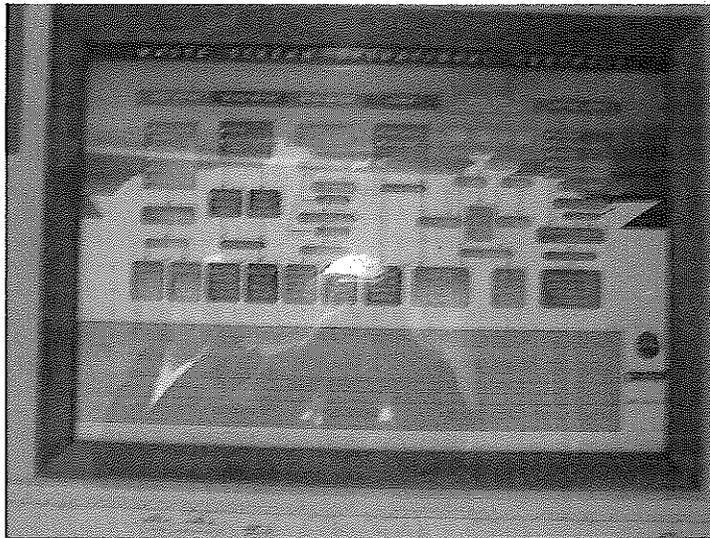


PHOTO #:05 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260005
DESCRIPTION: DISCHARGE POLICY DISPLAY IN ECR

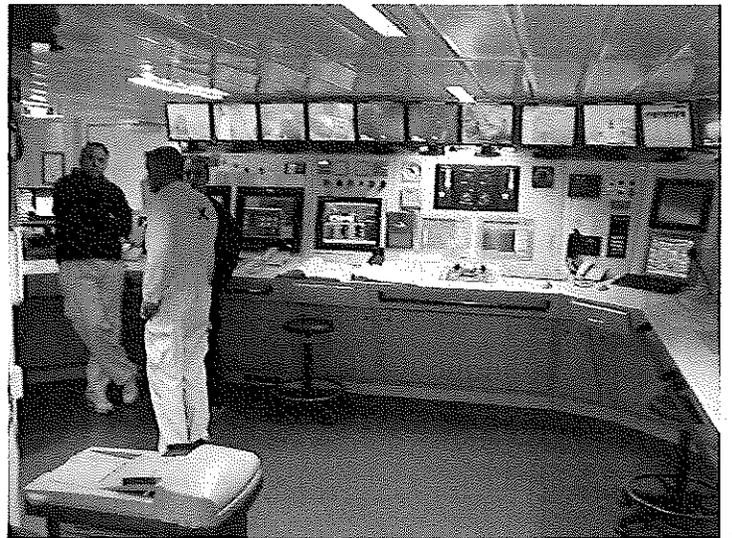


PHOTO #:06 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260006
DESCRIPTION: ENGINE CONTROL ROOM (ECR)

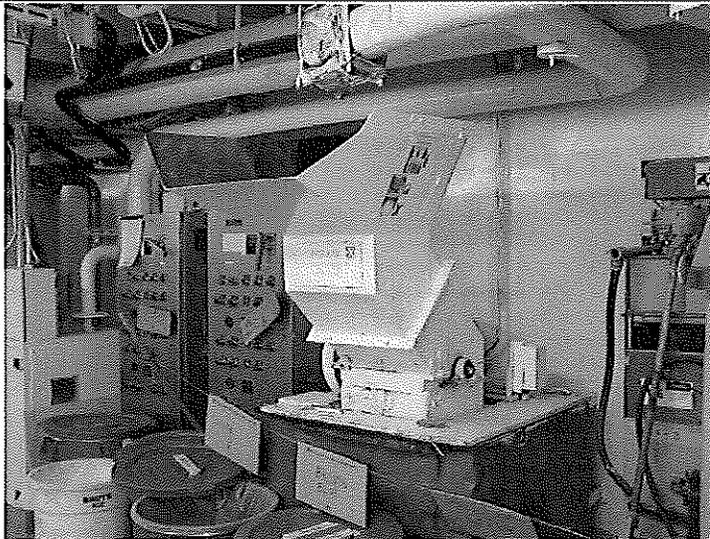


PHOTO #:07 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260007
DESCRIPTION: GARBAGE ROOM – GLASS SORTING AND CRUSHER

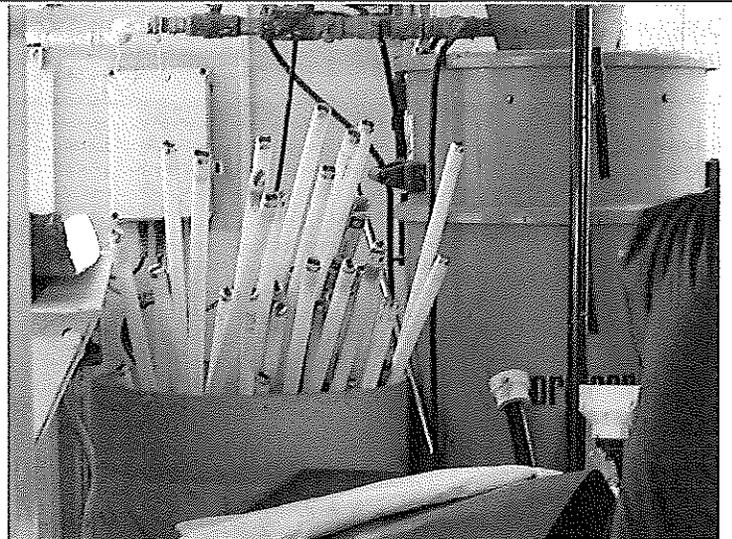


PHOTO #:08 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260008
DESCRIPTION: GARBAGE ROOM – FLUORESCENT LAMP
COLLECTION AND CRUSHER.

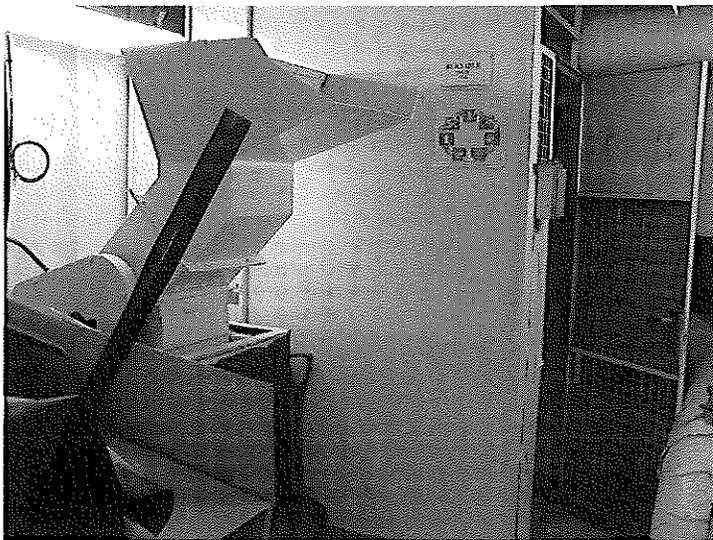


PHOTO #:09 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260009
DESCRIPTION: GARBAGE ROOM - COMPACTOR

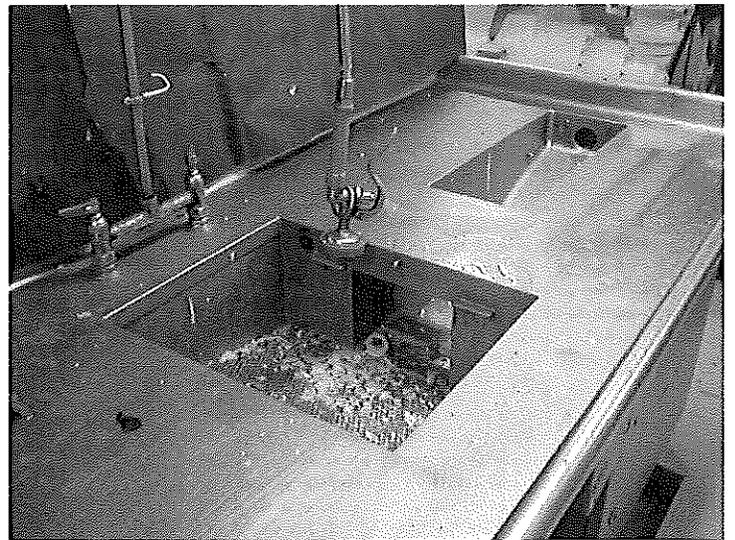


PHOTO #:10 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260010
DESCRIPTION: GARBAGE ROOM - CAN CLEANER - TO PULPER

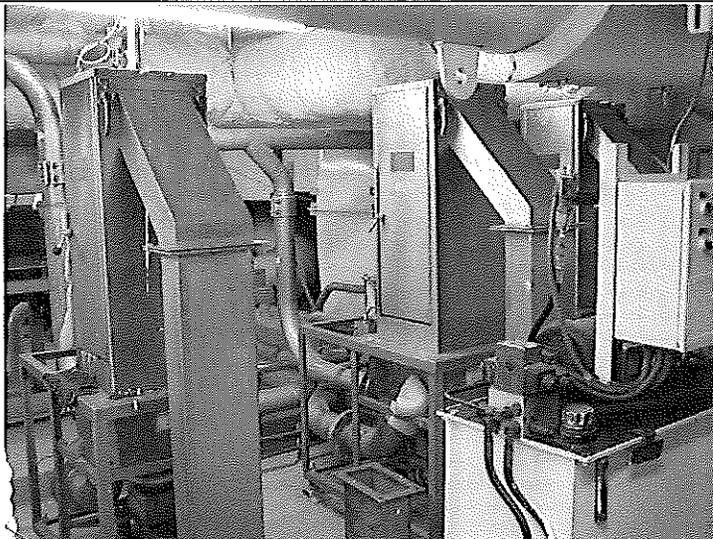


PHOTO #:11 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260011
DESCRIPTION: GARBAGE ROOM - FOOD PULPERS (3)



PHOTO #:12 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260012
DESCRIPTION: GARBAGE ROOM - AEROSOL DEPRESSURIZER

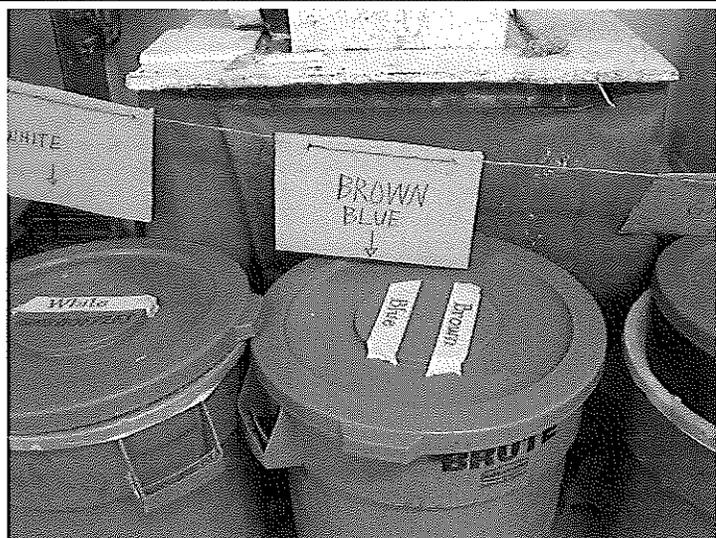


PHOTO #:13 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260013
DESCRIPTION: GARBAGE ROOM – GLASS COLOR SORTING



PHOTO #:14 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260014
DESCRIPTION: DRY GARBAGE/HAZ WASTE/CHEMICAL STORAGE ROOM



PHOTO #:15 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260015
DESCRIPTION: GALLEY

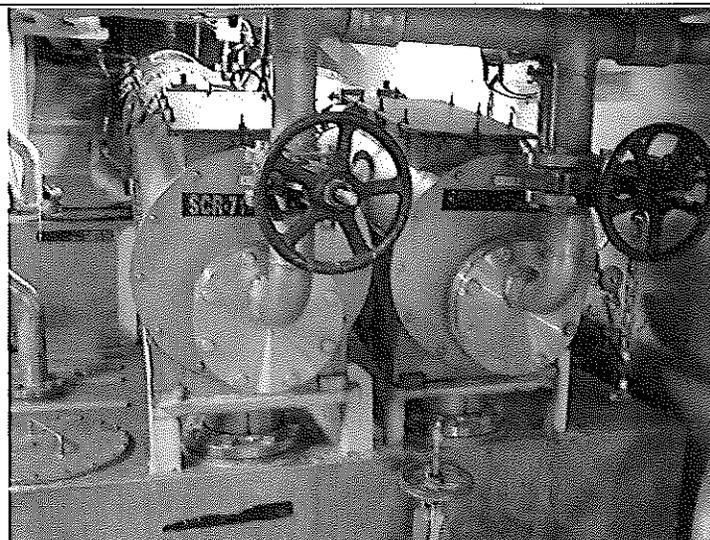


PHOTO #:16 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260016
DESCRIPTION: AWTS – DRUM SCREENS (2)

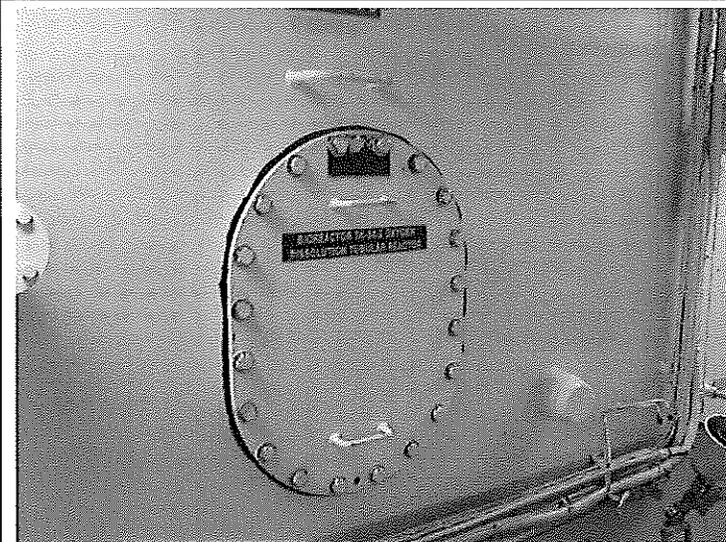


PHOTO #:17 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260017
DESCRIPTION: AWTS – BIOREACTOR TANK

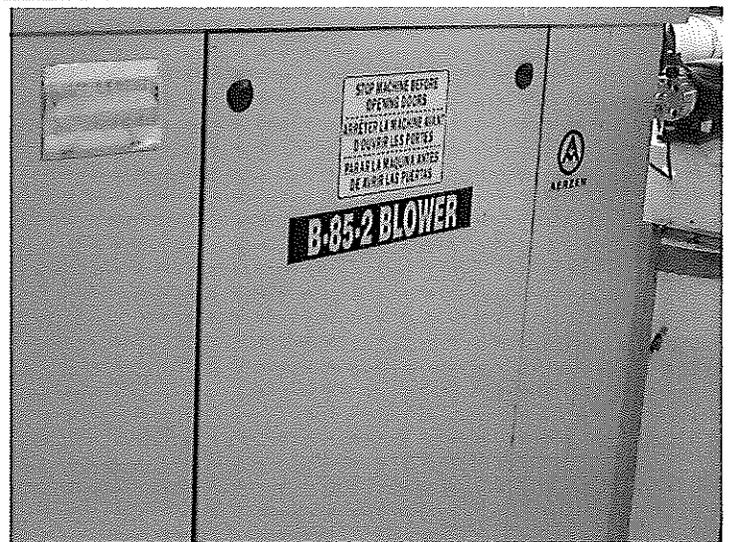


PHOTO #:18 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260018
DESCRIPTION: AWTS – BLOWER FOR MBR



PHOTO #:19 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260019
DESCRIPTION: AWTS – MBR BACKPULSE TANK



PHOTO #:20 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260020
DESCRIPTION: AWTS – TURBIDIMETER ON MBR (NOT WORKING ACCURATELY)

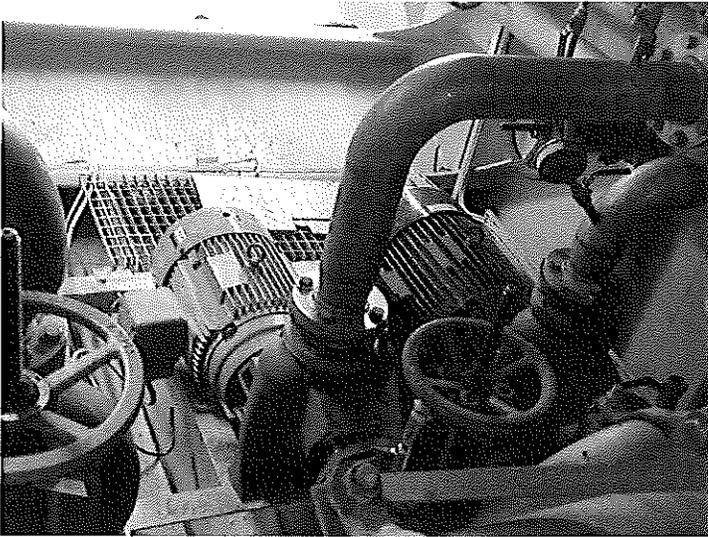


PHOTO #:21 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260021
DESCRIPTION: AWTS – MBR PUMPS

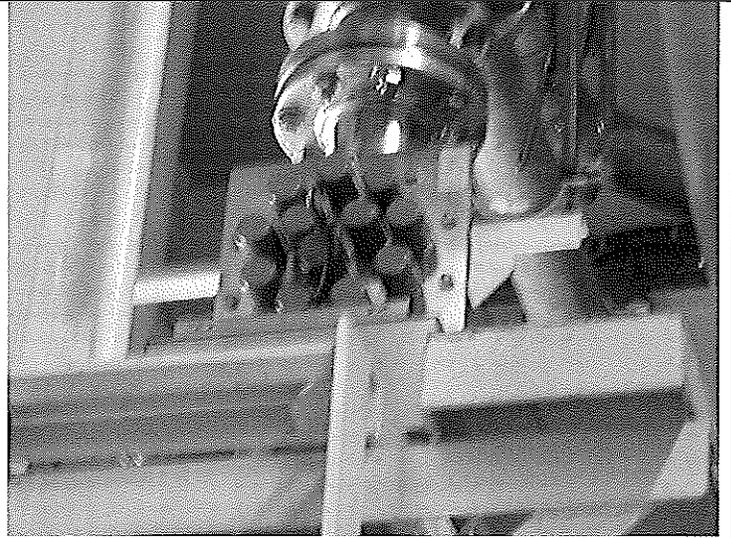


PHOTO #:22 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260022
DESCRIPTION: AWTS – UV DISINFECTION

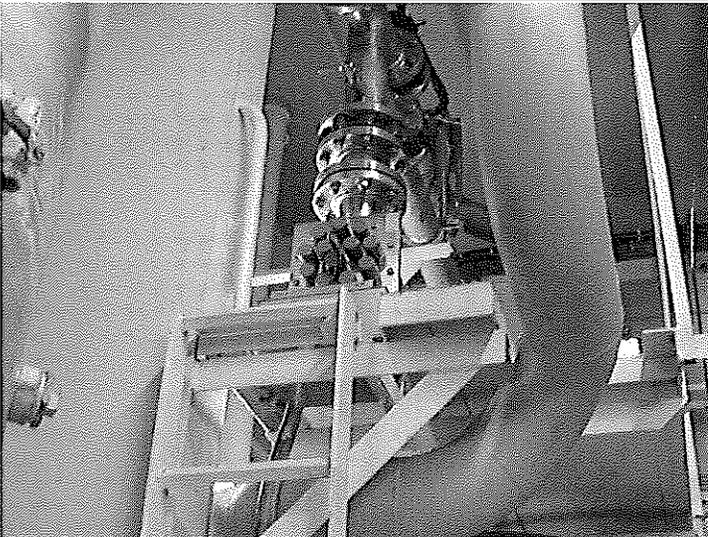


PHOTO #:23 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260023
DESCRIPTION: AWTS – UV DISINFECTION UNIT

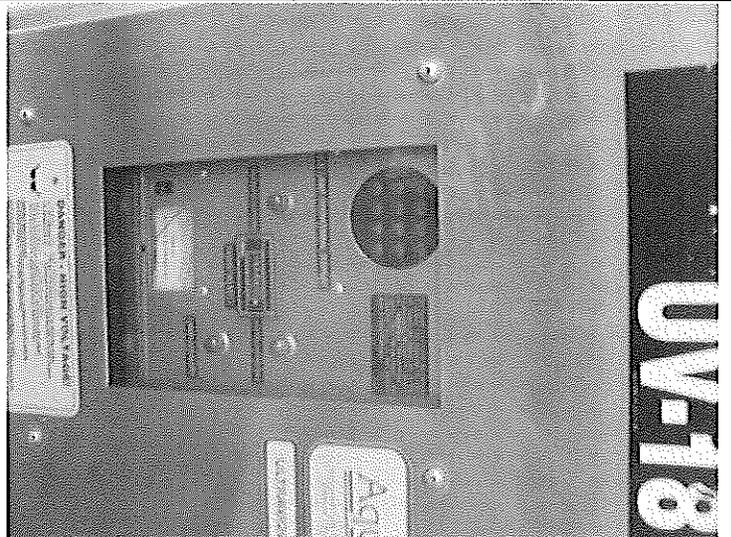


PHOTO #:24 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260025
DESCRIPTION: AWTS – UV DISINFECTION CONTROL PANEL



PHOTO #:25 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260026
DESCRIPTION: AWTS – UV DISINFECTION SYSTEM

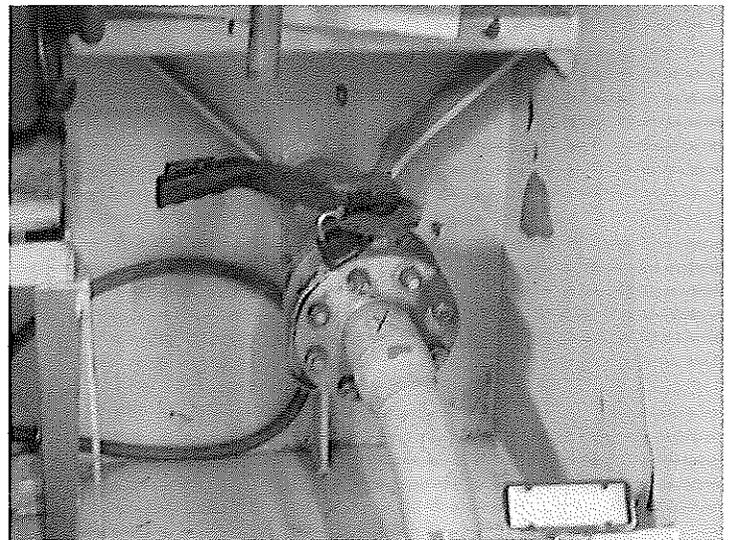


PHOTO #:26 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260027
DESCRIPTION: DISCHARGE PORT FOR OILY BILGE WATER

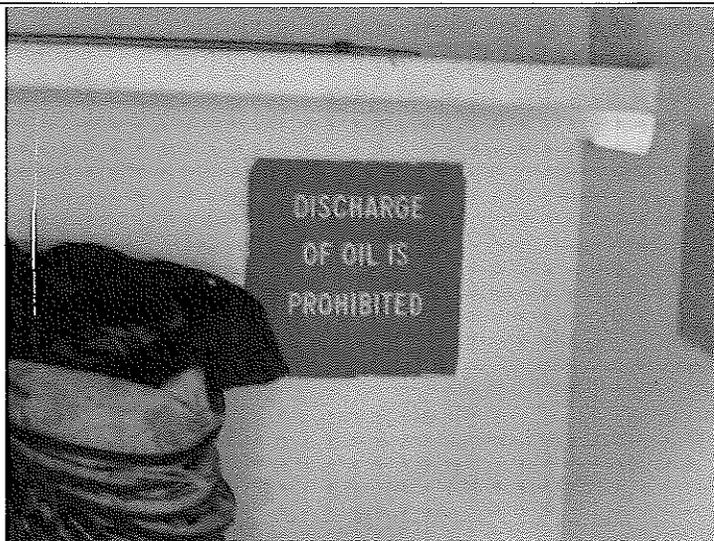


PHOTO #:27 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260028
DESCRIPTION: OILY BILGE DISCHARGE PORT SIGNAGE

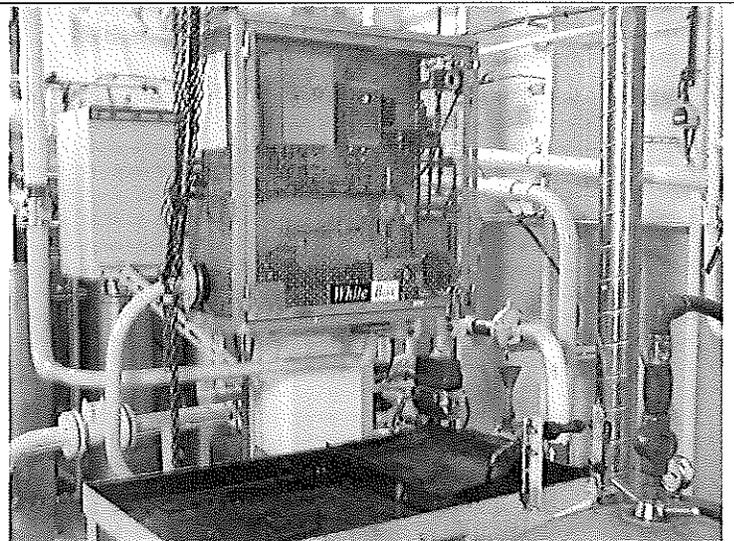


PHOTO #:28 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260030
DESCRIPTION: OILY BILGE WHITE BOX



PHOTO #:29 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260031
DESCRIPTION: OILY WATER SEPARATOR - MARIN FLOC SYSTEM

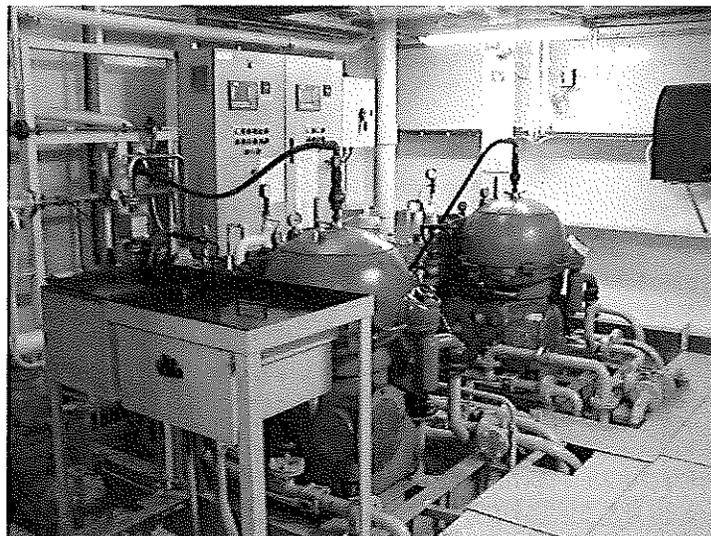


PHOTO #:30 DATE: SEPTEMBER 26, 2011
TAKEN BY: MARK HENLEY FILE No.:P9260032
DESCRIPTION: OILY BILGE SYSTEMS