



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 August 11, 2012	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Amy Jankowiak
Entry Time 8:54 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: NORWEGIAN JEWEL, Norwegian Cruise Line Pier 66 Seattle, Washington				Additional Participants/Inspectors:
On-Site Representative(s): <i>Name/Title/Phone/e-mail</i> Sue Lobo, Environmental Officer Env21@ncl.com Captain Lars Bergstrom CAPT21@ncl.com				
Responsible Official(s): <i>Name/Title/Address/Phone/e-mail</i> Randall R. Fiebrandt, Director, Environmental Operations Norwegian Cruise Line 7665 Corporate Center Drive, Miami, FL 33126 rfiebrandt@ncl.com 305-436-4956				Other Facility Data: Notification made to Randy Fiebrandt on August 9, 2012

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 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 Shutdown: 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

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>Turbidity or Equivalent:</p> <p>Last Calibration:</p> <p>Trigger Level for Early Alarm: _____ 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	
	<p>Disinfection Effectiveness Monitoring:</p>	
<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	
	<p>Disinfection System:</p>	

NOT APPLICABLE

Section D: General (Approved to Discharge) [2.1.3]

<input type="checkbox"/>	No Discharges Within 1/2 Miles From Shellfish Beds/ Protocol (President's Point, Apple Tree Cove, Tyea 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. No discharges appear to be in the OCNMS, MOU waters or Washington state waters. A closer look at the records will be done after the end of the cruise season.
<input checked="" type="checkbox"/>	Wastewater Discharges protocol per MOU and managed properly	The discharge protocol for blackwater and graywater includes an environmental voyage plan for the season and if discharging then a request is made to the bridge where locations are verified and the EO approves the discharge. The EO has the port keys and the discharges are logged on paper and electronically. The protocol is to not discharge in the OCNMS, MOU waters or Washington state waters.
<input checked="" type="checkbox"/>	Residual Solids Managed Properly/Disposal Protocol per MOU	Screenings and grit from drum screen as well as biomass (sewage sludge) from the Scanship system is held and then discharged outside of MOU waters, >12 nautical miles from shore, and outside of the

	Olympic Coast National Marine Sanctuary.
<input checked="" type="checkbox"/> Hazardous Waste Managed Properly	All hazardous waste that is collected is being sent off-shore in Victoria, Canada. Some logs were reviewed and showed consistency.
<input checked="" type="checkbox"/> WA Hazardous Waste Guidelines Followed (Appendix vii)	All hazardous waste that is collected is being sent off-shore in Victoria, Canada. Some logs were reviewed and showed consistency.
<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 goes through a silver recovery system prior to offload with hazardous waste materials. X-rays are done digitally without waste.
<input checked="" type="checkbox"/> Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	Dry cleaning uses PERC which is off-loaded with hazardous waste. Laundry water is collected and sent through the Scanship system.
<input checked="" type="checkbox"/> Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Expired and unused medications are either offloaded back to the vendor or offloaded for disposal. Narcotics are incinerated with witness.
<input checked="" type="checkbox"/> Fluorescent and Mercury Vapor Lamp Bulbs Managed Properly (prevent release of mercury)	Fluorescent lamps go through a bulb crusher and offloaded. Mercury filters are offloaded as hazardous waste. Other types of bulbs are offloaded as hazardous waste.
<input checked="" type="checkbox"/> Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Glass, aluminum, tin, scrap metal, plastics (1-7), some paper and cardboard, used cooking oil and other materials are recycled. Reduction and reuse opportunities are broadly used to prevent the amount of waste.
<input checked="" type="checkbox"/> Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries are collected, sorted and binned to be offloaded in Victoria, Canada for recycling or disposal as appropriate.
<input checked="" type="checkbox"/> Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash is offloaded and tested annually for non-hazardous status. Results have passed. Incinerators are used once away from port (approximately 1 hour out).
<input checked="" type="checkbox"/> Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge is treated and with a Marin Flocc and RWO oily water separator systems. 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. Oily sludge is drummed and offloaded for proper disposal.
<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 exchanges do not occur on this route.
<input checked="" type="checkbox"/> OCNMS rules and regs followed	No discharges occur in OCNMS waters per protocol and records reviewed showed consistency.
Additional General Questions	
<input checked="" type="checkbox"/> How is deck runoff and hull cleaning handled (scuppers...) (non-toxic/phosphate free cleaners, biodegradable)	Upper hull cleaning is done with fresh water. Deck runoff goes to the scuppers and then to the graywater tanks. Bottom hull cleaning is only done in dry dock.
<input checked="" type="checkbox"/> How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	Paint chipping and painting not done in port.
<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 and pulper water goes to the Scanship system.
<input checked="" type="checkbox"/> Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical floor drains go to the blackwater tanks and then to the Scanship system. Biohazardous wastes are collected and incinerated. Sharps are off-loaded with hazardous waste.
<input checked="" type="checkbox"/> Where is pool and spa water discharged? Dechlorinated/debrominated and underway?	Pool water (seawater) is discharged out at sea. Jacuzzi water is sent daily to the graywater tanks. Pool water is dechlorinated with sodium thiosulfate prior to discharge.
<input checked="" type="checkbox"/> What type of fuel is used and percent sulfur content?	Fuel at <1% sulfur is used throughout the cruise.
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) conducted the inspection of the Norwegian Cruise Line (NCL) NORWEGIAN JEWEL on August 11, 2012. The main contact on board the NORWEGIAN JEWEL was Sue Lobo, Environmental Officer for the NORWEGIAN JEWEL. Prior notification of the visit was given on August 9, 2012 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 NORWEGIAN JEWEL is not approved to discharge wastewater in MOU waters.

The NORWEGIAN JEWEL entered service in 2005, is 965 feet long with 15 decks and about a 27-foot draft. The passenger capacity is about 2376 and the crew capacity is about 1100.

The NORWEGIAN JEWEL is scheduled for 17 port calls in Seattle and conducts one week cruises to Alaska turning around on Saturdays between May 26, 2012 and September 15, 2012.

Inspection

I arrived and boarded the ship (photo #01) at about 8:54 am and began with introductions and a plan for the day with Sue Lobo, Environmental Officer (EO) and met with Captain Lars Bergstrom and navigation staff. We discussed discharge protocols on the bridge and then met in the engine control room (ECR) to discuss various waste streams and discharge protocols. We then reviewed the various discharge and environmental records. We then toured the Scanship blackwater and graywater Advanced Wastewater Treatment System (AWTS) and the oily bilge treatment system. We toured the garbage and recycling rooms, hazardous waste storage and one of the galleys and food waste system. The inspection was then finalized with a debriefing and I disembarked the vessel at about 11:08 am.

Discharge Types and Protocols:

The discharge protocol for wastewater includes an "environmental voyage plan" (photo #02) that is discussed and planned prior to the cruise season and is marked on the charts. When a discharge is to occur, a request is made to the bridge where locations are verified and upon discharge, the locations are logged on the bridge and in the ECR as well as electronically. The EO and the Captain are the only ones who have the port keys to unlock the discharge port. The EO is notified to open the discharge port. The environmental voyage plan for the 2012 season requires that all discharges (wastewater, oily bilge, ballast water, galley water, pool water, etc.) be stopped prior to entering into the Olympic Coast National Marine Sanctuary (OCNMS) and Washington State and MOU waters and resuming discharges only when outside of those waters.

Blackwater, which includes toilet water and infirmary drains and graywater which includes sink and shower and laundry water is treated with a Scanship AWTS (photo #03) and is discharged outside of OCNMS and Washington State and MOU waters. Discharges occur in Canadian waters near Victoria after approximately 3am.

Discharge records were reviewed (blackwater, graywater and residual solids) and are maintained properly. Discharges appear to be outside of the OCNMS and Washington State and MOU waters. The EO made copies of requested pages for later review. The records showed consistency with MOU requirements.

Screenings and grit from drum screen as well as biomass (sewage sludge) from the Scanship system is held and then discharged outside of MOU waters, >12 nautical miles from shore, and outside of the Olympic Coast National Marine Sanctuary.

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

All hazardous waste (photos #28 and #29) that is collected is being sent off-shore in Victoria, Canada. Some logs were reviewed and showed consistency. Hazardous waste materials include items such as aerosols, paints, thinners, batteries, sharps and acupuncture needles, photo waste, and oil filters.

Waste from the photo processing goes through a silver recovery system to <5ppm prior to offload with hazardous waste materials. X-rays are done digitally.

Dry cleaning uses PERC which is off-loaded with hazardous waste (photo #30). There are plans for the system to be changed out for a non-PERC system. Laundry water is collected and sent through the Scanship system.

Expired and unused medications are either offloaded back to the vendor or offloaded for disposal. Narcotics are incinerated with witness.

Fluorescent lamps go through a bulb crusher (photo #27) and offloaded. Mercury filters are offloaded as hazardous waste. Other types of bulbs are offloaded as hazardous waste. They are also looking at replacing bulbs throughout the ship with more energy efficient ones.

Solid waste is managed properly. The various solid waste streams are collected, sorted (photo #20), 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.

Glass and plastics (1-7) are crushed and compacted (photo #21), aluminum and tin are compacted (photo #22), scrap metal, some paper and non-contaminated cardboard, used cooking oil (photo #26), and other materials are recycled. Reduction and reuse opportunities are broadly used to prevent the amount of waste (photos #23 and #24). Some materials are stored in cold storage (photo #25).

The vessel has presentations with passengers on environmental issues and a program runs on the vessel TV as well.

Incinerator ash is offloaded and tested annually for non-hazardous status. Results have passed. Incinerators (photo #36) are started up approximately 1 hour out of Seattle on the way to Canada. Fuel at <1% sulfur is used throughout the cruise.

Oily bilge is treated first with a Marin Floc oily water separator system (photos #15 and #16) and then with an RWO oily water separator system (photo #17) to bring oil content down to <15 ppm. Values are usually less than 5 ppm. Discharges (photo #19) occur at less than 15 ppm and >12 nautical miles, >6 knots and at Sea. A white box (photo #18) is used to prevent discharges of more than 15 ppm. Oily sludge is drummed and offloaded for proper disposal. Oily rags are incinerated.

No ballast exchanges occur on this route.

Food waste is sorted twice prior to going into the pulpers (photos #34 and #35). First in the various bins (photo #32) in the galley and again going into the pulper (photo #33). The galley staff are also trained and supervised. Bones are crushed (photo #31). Solid food waste is discharged outside of MOU waters after pulping. Some materials are incinerated such as chicken skin and pineapples. Galley water and pulper water goes to the Scanship system.

Phosphate free, non-toxic cleaners are used in the galleys (Swisher brand).

Upper hull cleaning is done underway. Bottom hull cleaning is only done when in dry dock. Deck runoff goes to the scuppers which drain to the graywater tanks. Windows are spray cleaned with fresh water only.

Paint chipping and painting is not done in Port.

Pool water (seawater) is discharged out at sea beyond 12 nautical miles and is de-chlorinated prior to discharge. Jacuzzi water is discharged daily usually at night time and drains to the graywater tank for Scanship treatment.

Scanship System:

Blackwater, which includes toilet waste and infirmary drains by vacuum to one of the collection tanks and graywater which includes sink and shower water, galley water, jacuzzi water and laundry water, combines in tanks before combining and

entering the drum screens. There are two drum screens (photos #04 and #05) which provide pre-screening. The drum screens are cleaned weekly with water. Solids from the drum screens go to the sludge tank. Liquid flow from the drum screens then enters the biostep tanks (photos #06 and #07) for biological treatment (biofilm on rotating plastic pieces – 2 tanks in series, air added). After biostep, coagulants (photo #9) and polymers are added. Clarification then occurs via flotation tanks (photo #08). Solids from the flotation tanks are sent to the sludge tank along with the screenings to be held for later discharge. Liquid flow then moves to the polishing filters (photo #10) for ultrafiltration (2 rotating mesh drums). Flow then moves to ultraviolet light (UV) disinfection (photos #11 and #12). There are three UV units, of which two are typically used with 14 bulbs each. The bulbs are alarmed for bulb failure and intensity at 10 watts. The UV sleeves are cleaned by dosing Ameroid RSR (new cleaner) cleaner automatically, daily. The UV light sleeves are also hand wiped about once a month. Flow from the UV units is either discharged directly overboard via the discharge port (photo #14) or is held for discharge later outside of MOU waters. A total suspended solids (TSS) meter (photo #13) measures solids (equivalent to turbidity) continuously at the UV system. At the time of the inspection, the reading was 3.28 mg/l. The TSS meter is alarmed at 29.9 to shut down the discharge. The Scanship operator said that the meter only spikes when cleaning occurs.

Conclusions and Recommendations

It is recommended that staff continue to work towards high functioning wastewater treatment systems. The staff on board the vessel were very knowledgeable of the systems and protocols.

Attachments:
Photographs

Copies to:
 Captain Lars Bergstrom, NORWEGIAN JEWEL
 Sue Lobo, Environmental Officer, NORWEGIAN JEWEL
 Randy Fiebrandt, NCL
 Mark Toy, Department of Health
 Greg Wirtz, NWCCA
 Amy Jankowiak, Ecology
 Mark Henley, Ecology
 Kevin Fitzpatrick, Ecology
 Central Files: Norwegian Cruise Line - NORWEGIAN JEWEL; WQ 6.1

Section H: Signatures

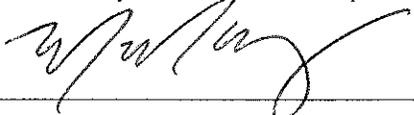
<u>Name and Signature of Inspector:</u> Amy Jankowiak 	<u>Agency/Office/Telephone:</u> Department of Ecology Northwest Regional Office Municipal Compliance Specialist 425-649-7195	<u>Date</u> 8/28/12
<u>Name and Signature of Reviewer:</u> Mark Henley, Municipal Unit Supervisor 	<u>Agency/Office/Telephone:</u> Department of Ecology Northwest Regional Office Water Quality Section Manager 425-649-7103	<u>Date</u> 8/28/12



PHOTO #:01 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110001
DESCRIPTION: NORWEGIAN JEWEL VESSEL

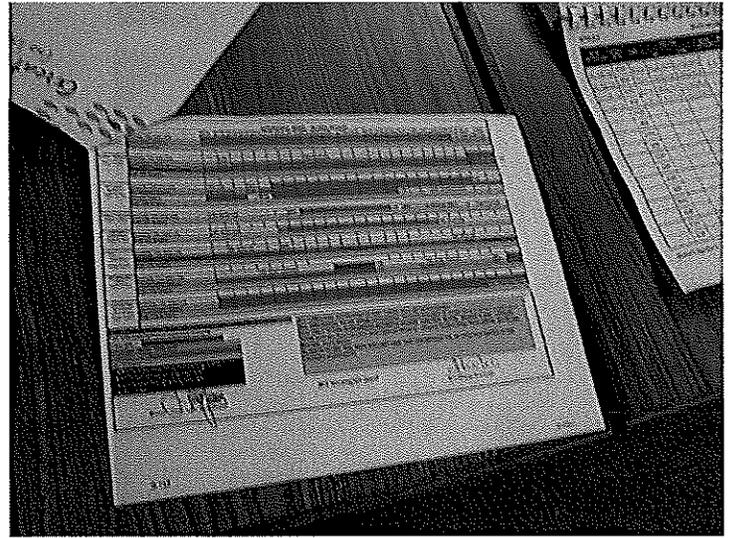


PHOTO #:02 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110002
DESCRIPTION: ENVIRONMENTAL VOYAGE PLAN

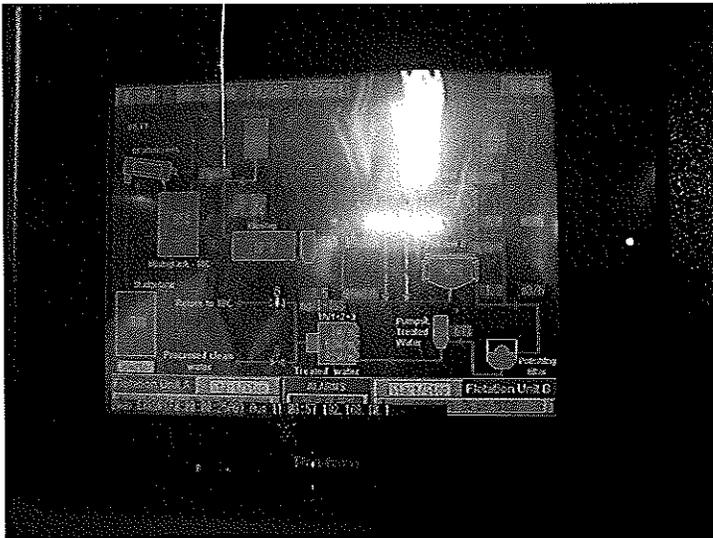


PHOTO #:03 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110003
DESCRIPTION: SCANSHIP SYSTEM OPERATIONS

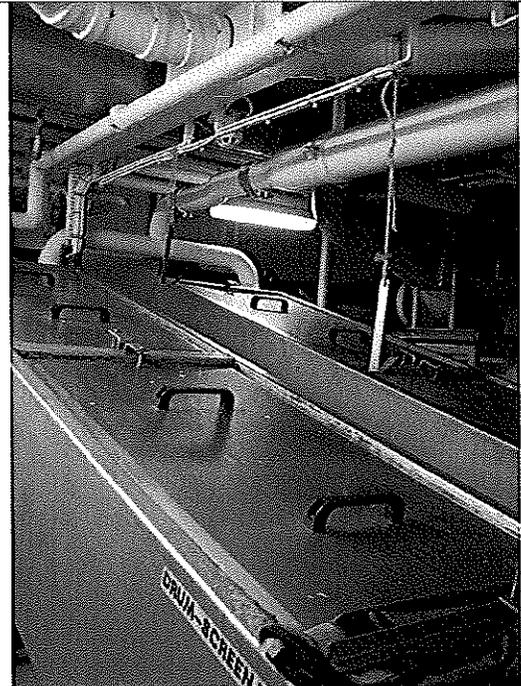


PHOTO #:04 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110004
DESCRIPTION: SCANSHIP DRUM SCREENS

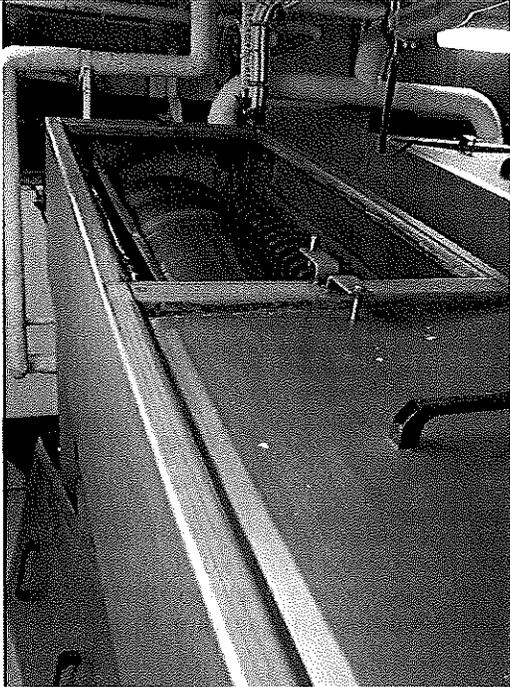


PHOTO #:05 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110005
DESCRIPTION: INSIDE OF SCANSHIP DRUM SCREEN



PHOTO #:06 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110006
DESCRIPTION: SCANSHIP BIO-REACTOR TANK (BIOSTEP)

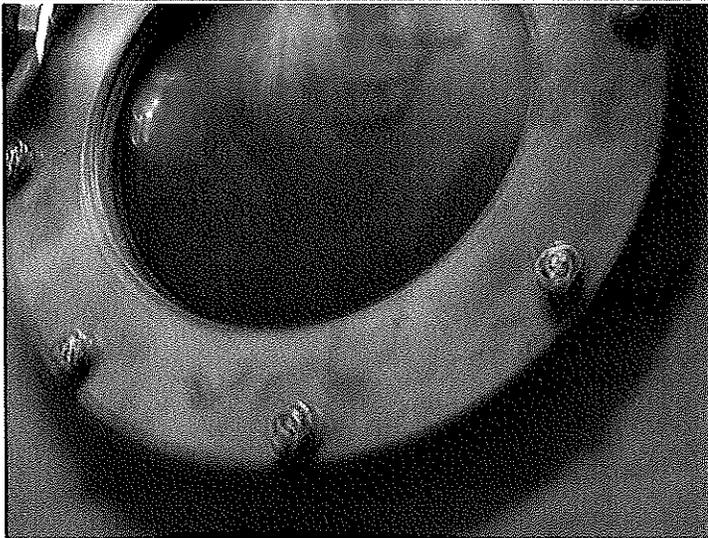


PHOTO #:07 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110007
DESCRIPTION: INSIDE OF SCANSHIP BIO-REACTOR

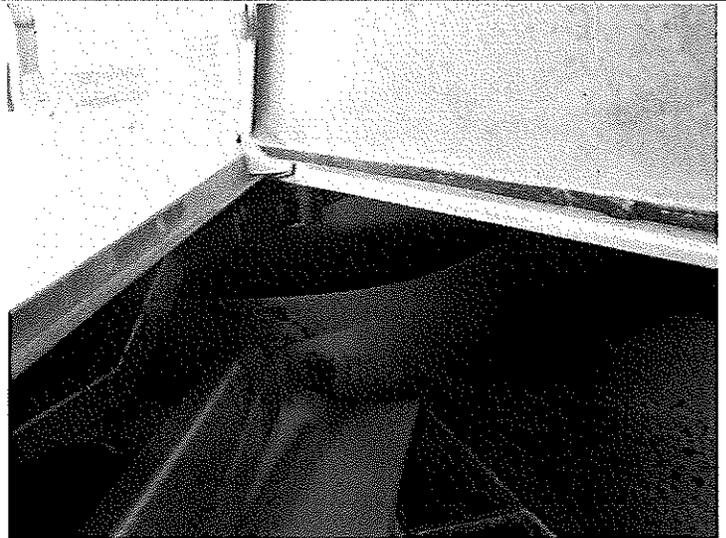


PHOTO #:08 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110008
DESCRIPTION: INSIDE OF SCANSHIP FLOTATION TANK

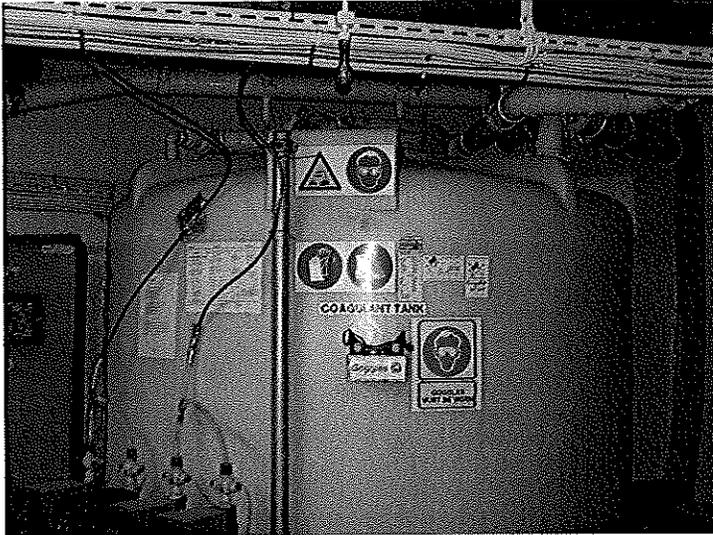


PHOTO #:09 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.:P8110009
DESCRIPTION: SCANSHIP COAGULANT TANK

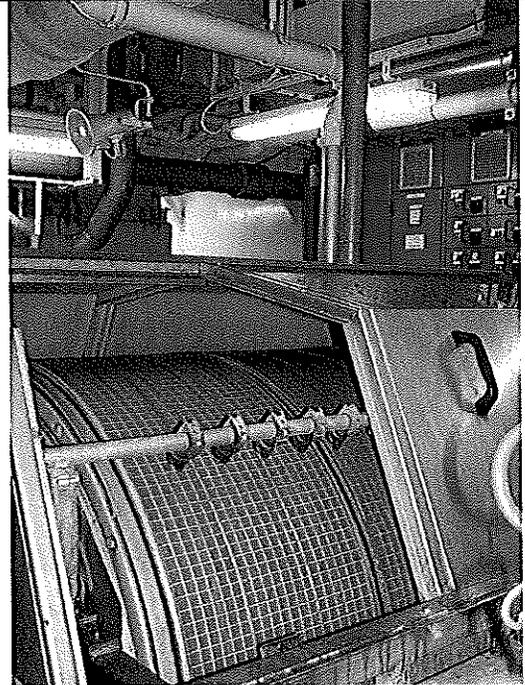


PHOTO #:10 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110010
DESCRIPTION: INSIDE OF SCANSHIP POLISHING FILTER

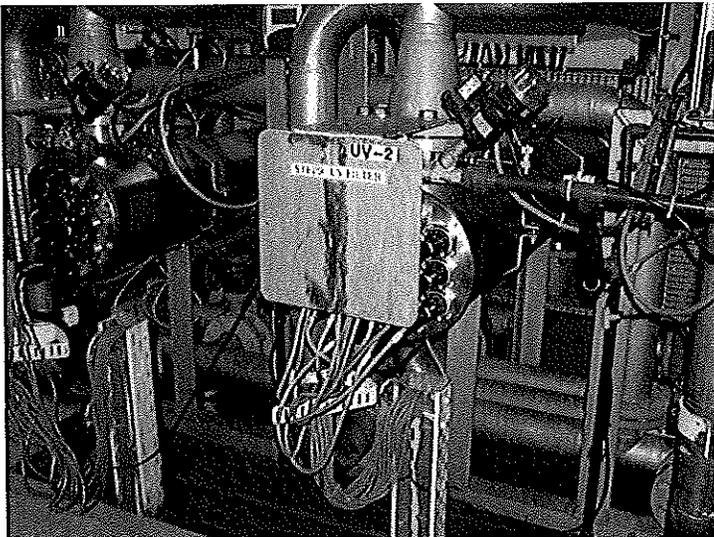


PHOTO #:11 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110011
DESCRIPTION: SCANSHIP ULTRAVIOLET LIGHT DISINFECTION
SYSTEM

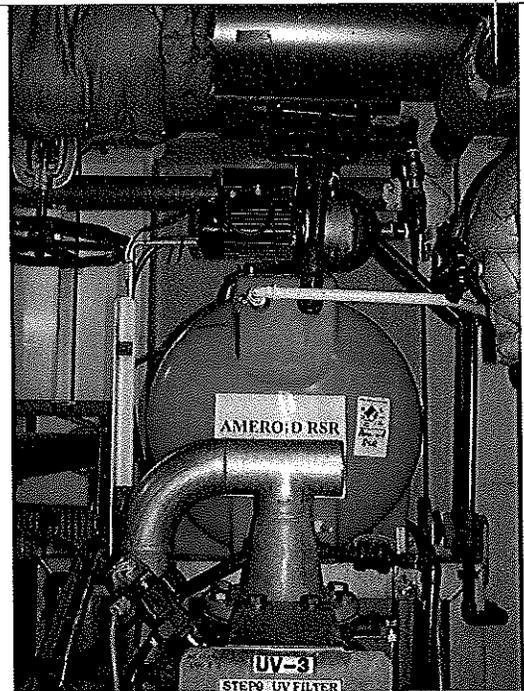


PHOTO #:12 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110012
DESCRIPTION: SCANSHIP ULTRAVIOLET LIGHT DISINFECTION
SYSTEM CLEANER

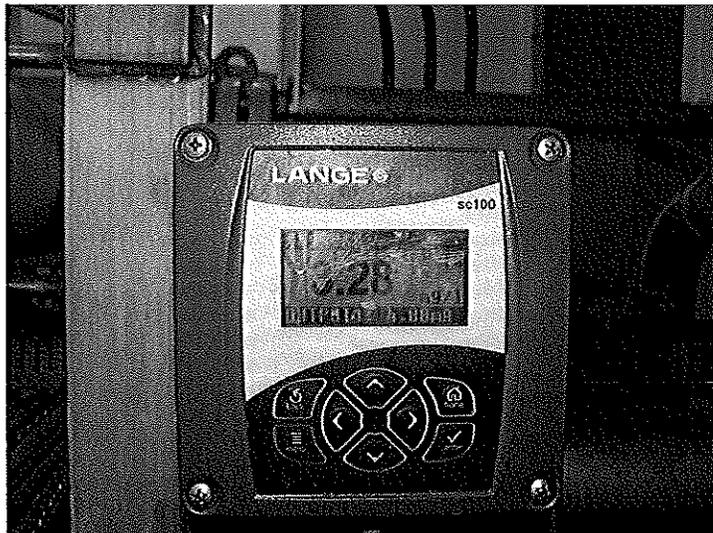


PHOTO #:13 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110013
DESCRIPTION: SCANSHIP TSS SENSOR (3.28 MG/L)

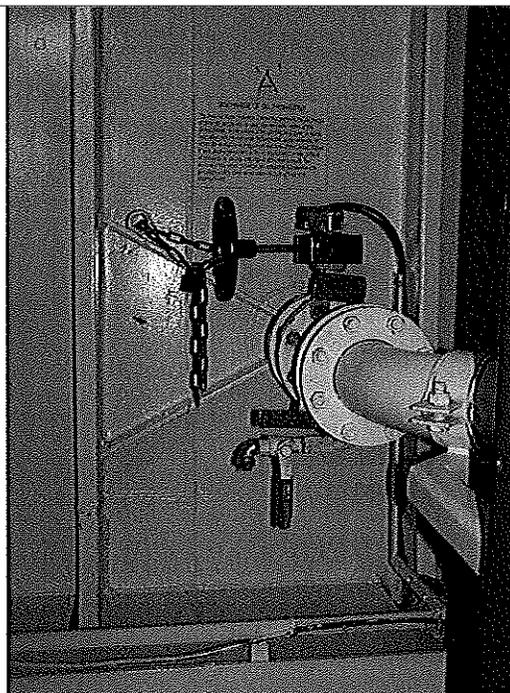


PHOTO #:14 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110014
DESCRIPTION: SCANSHIP TSG DISCHARGE PORT

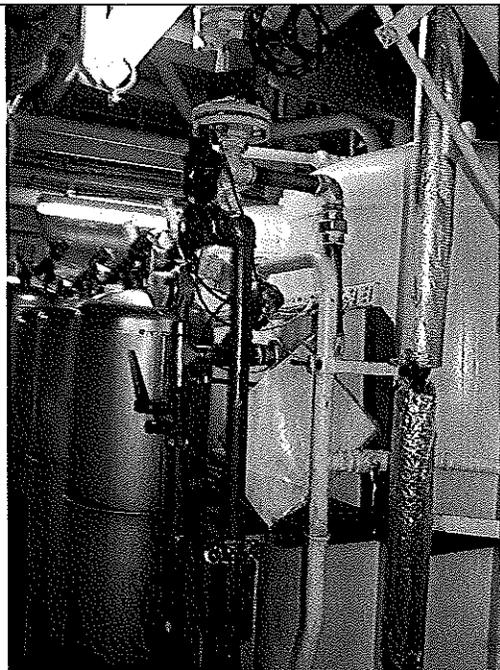


PHOTO #:15 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110015
DESCRIPTION: MARIN FLOC OILY BILGE WATER SEPARATOR

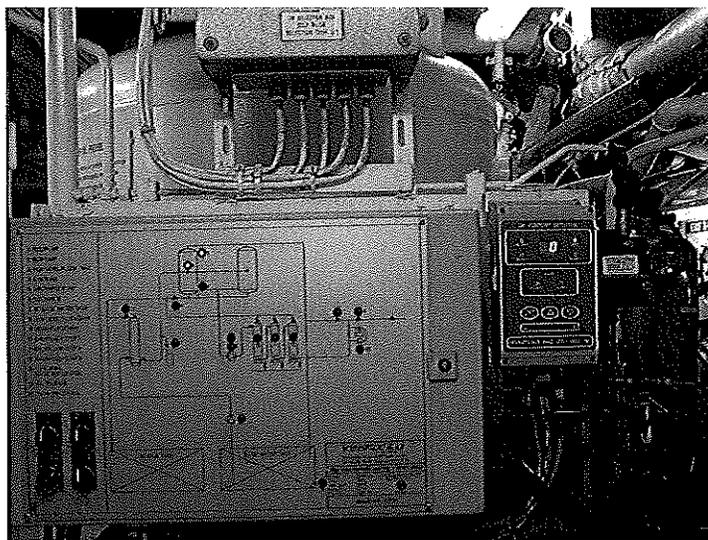


PHOTO #:16 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110016
DESCRIPTION: MARIN FLOC OILY BILGE WATER SEPARATOR

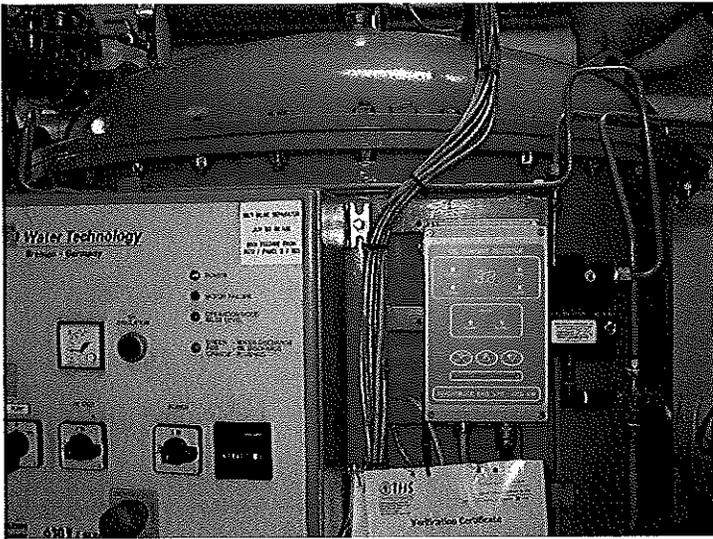


PHOTO #:17 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.:P8110017
DESCRIPTION: RWO OILY BILGE WATER SEPARATOR

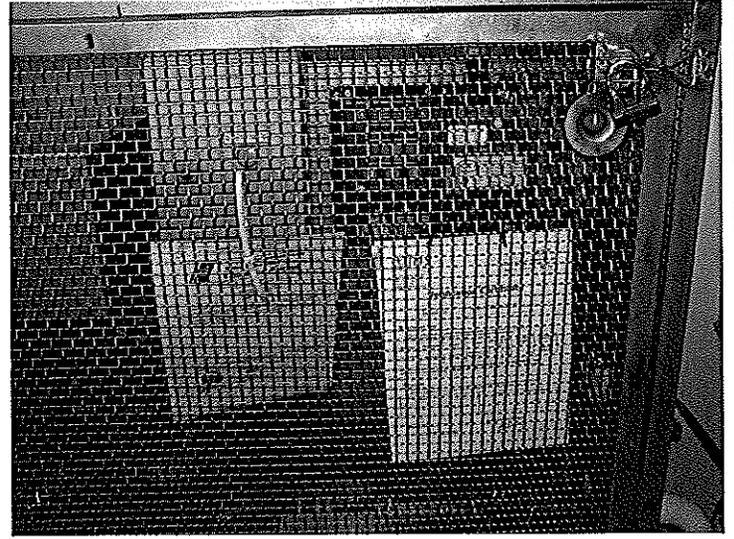


PHOTO #:18 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P811018
DESCRIPTION: OILY BILGE WATER WHITE BOX

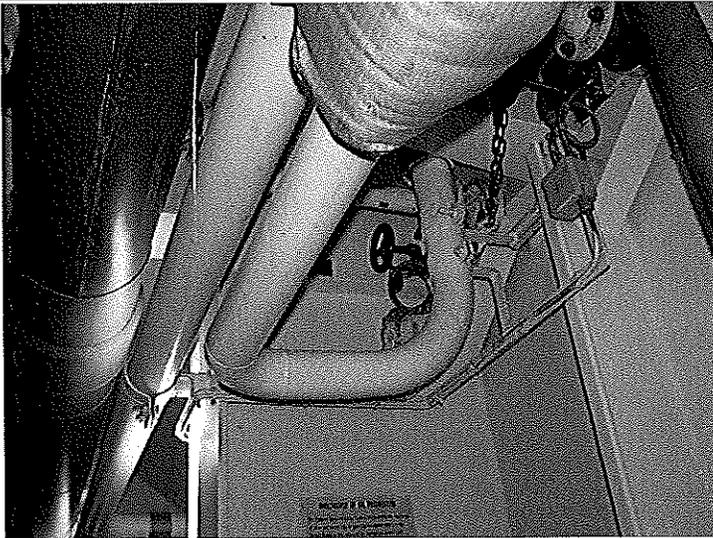


PHOTO #:19 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110019
DESCRIPTION: CLEAN OILY BILGE DISCHARGE PORT



PHOTO #:20 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110020
DESCRIPTION: GARBAGE AND RECYCLING ROOM

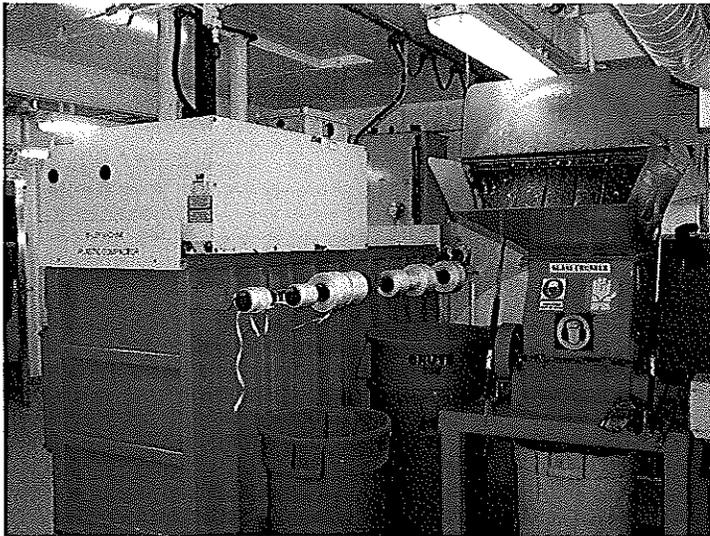


PHOTO #:21 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110021
DESCRIPTION: GLASS CRUSHER AND PLASTIC COMPACTOR

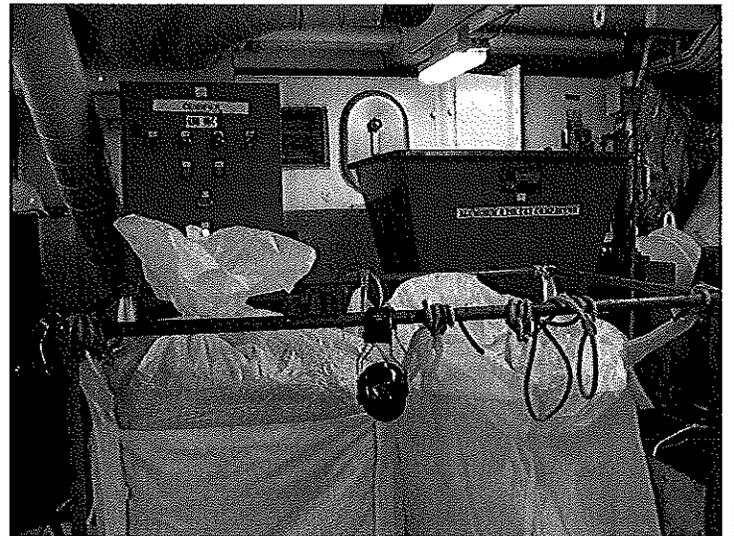


PHOTO #:22 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110022
DESCRIPTION: DENSIFIER AND ALUMINUM & TIN CAN COMPACTOR



PHOTO #:23 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110023
DESCRIPTION: WASTE MANAGEMENT BOARD

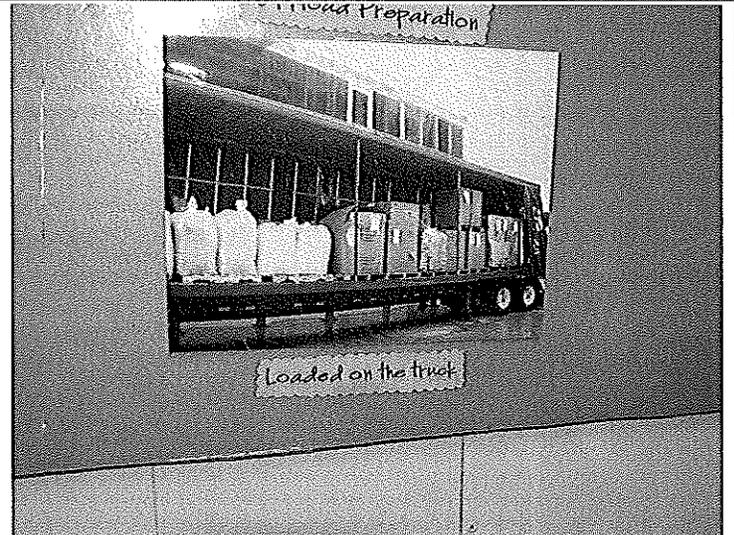


PHOTO #:24 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110024
DESCRIPTION: RECYCLING OFF-LOAD TO TRUCK

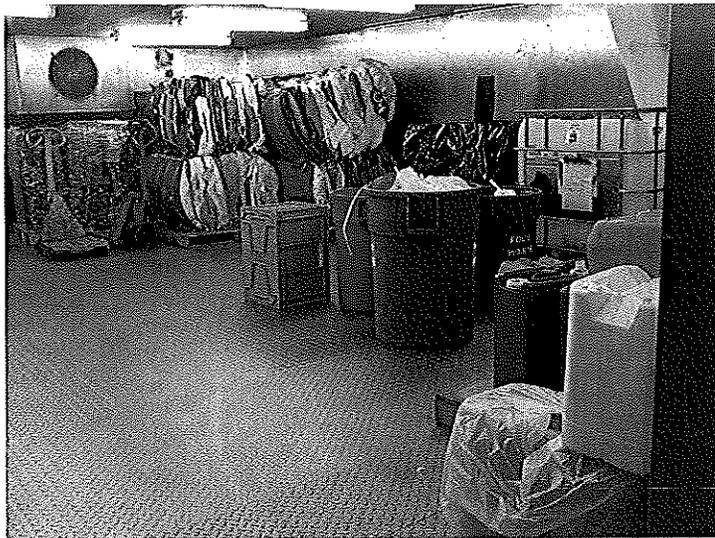


PHOTO #:25 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110025
DESCRIPTION: GARBAGE AND RECYCLING COLD STORAGE



PHOTO #:26 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110026
DESCRIPTION: USED COOKING OIL STORAGE

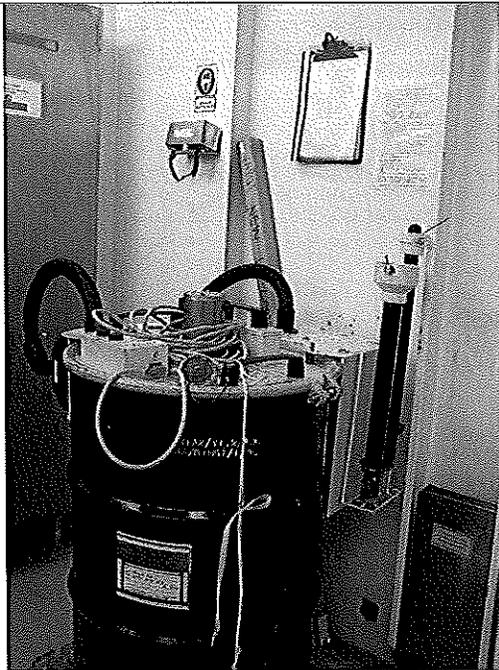


PHOTO #:27 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110027
DESCRIPTION: FLUORESCENT BULB CRUSHER



PHOTO #:28 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110028
DESCRIPTION: HAZARDOUS WASTE STORAGE



PHOTO #:29 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110029
DESCRIPTION: HAZARDOUS WASTE STORAGE



PHOTO #:30 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110030
DESCRIPTION: PERC (DRY- CLEANING) HAZARDOUS WASTE

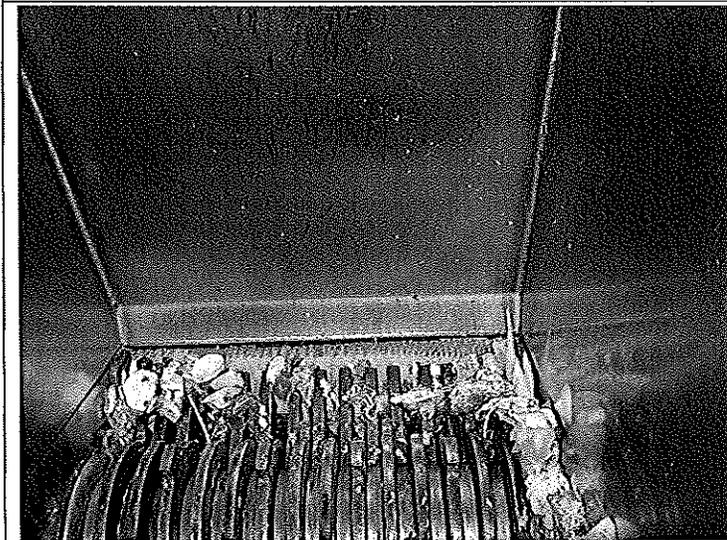


PHOTO #:31 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110032
DESCRIPTION: FOOD WASTE BONE CRUSHER

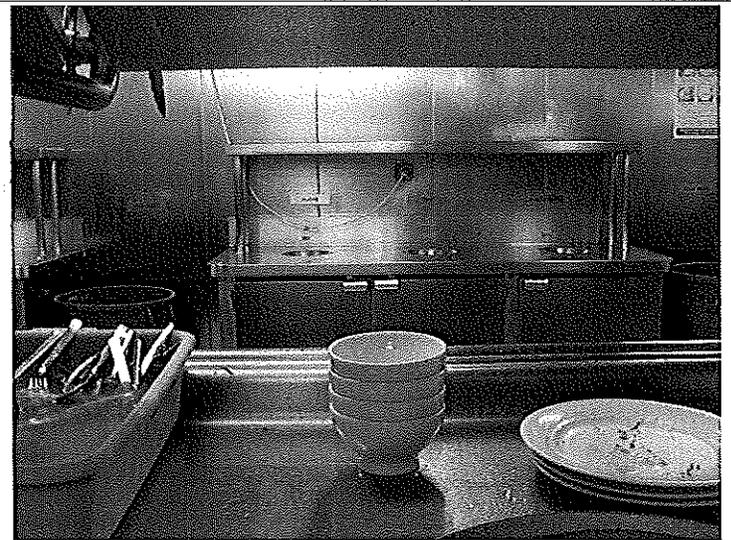


PHOTO #:32 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110033
DESCRIPTION: GALLEY WASTE SEPARATION



PHOTO #:33 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110034
DESCRIPTION: GALLEY FOOD WASTE TO PULPER

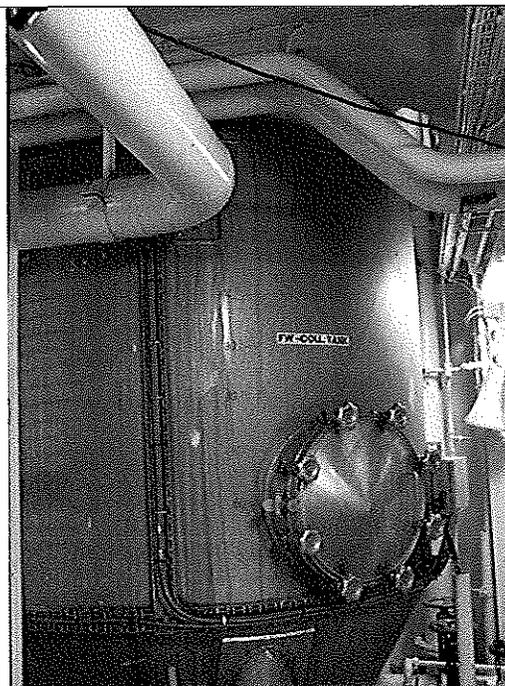


PHOTO #:34 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110035
DESCRIPTION: FOOD WASTE COLLECTION TANK

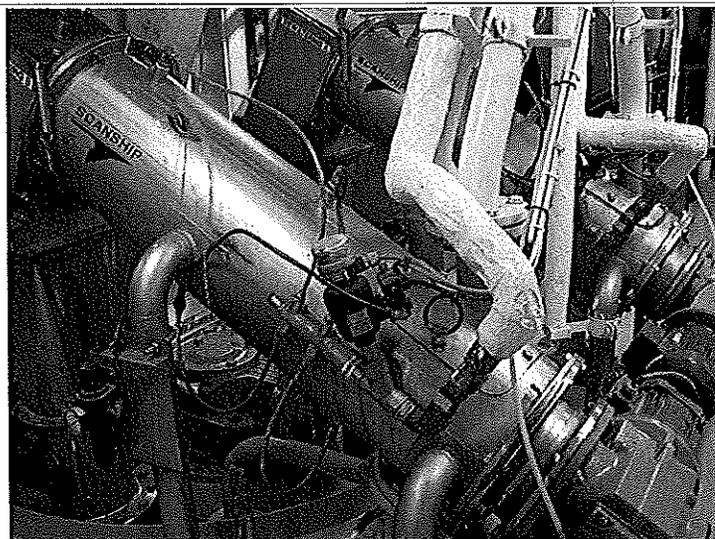


PHOTO #:35 DATE: AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110036
DESCRIPTION: FOOD WASTE PULPER TO SCANSHIP



PHOTO #:36 AUGUST 11, 2012
TAKEN BY: AMY JANKOWIAK FILE No.: P8110037
DESCRIPTION: INCINERATORS

