



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 23, 2013	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Amy Jankowiak
Entry Time 9:13 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 1:10 pm				Additional Participants/Inspectors:
Name and Location of Site Inspected: CELEBRITY SOLSTICE, Celebrity Cruises Pier 91 Seattle, Washington				
On-Site Representative(s): <i>Name/Title/Phone/e-mail</i> Nick Asproudas, Environmental Officer SL_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@rccl.com				Other Facility Data: Notification made to Rich Pruitt on August 20, 2013

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	NOT APPLICABLE
<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 Insure System Shut Down if High Turbidity Occurs	
<u>Turbidity or Equivalent:</u> 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	
<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 C: For Vessels Discharging Continuously [2.1.3(B)]

<input type="checkbox"/>	Schematics Match Black/Gray Wastewater System	NOT APPLICABLE
<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:		

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, Tye 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 (MOU related waters)
<input checked="" type="checkbox"/>	Wastewater Discharges protocol per MOU and managed properly	The discharge protocols appear to be consistent with MOU requirements to not occur in MOU related waters.
<input checked="" type="checkbox"/>	Residual Solids Managed Properly/Disposal Protocol per MOU	Residual solids appear to be handled per MOU requirements.
<input checked="" type="checkbox"/>	Hazardous Waste Managed Properly	Hazardous waste appears to be handled per MOU requirements.
<input checked="" type="checkbox"/>	WA Hazardous Waste Guidelines Followed (Appendix vii)	Hazardous waste guidelines appear to be handled per the MOU and guidelines.
<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,	Photo and x-ray waste appears to be handled per MOU requirements.

	cartridges,...) and landed ashore	
<input checked="" type="checkbox"/>	Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	Dry cleaning waste products appear to be 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.
<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 exchanges appears to be managed 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?	<2% sulfur content is used throughout the route, with 0.0007% MGO being used during parts of the route averaging to less than 1% sulfur content.

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 Celebrity Cruises SOLSTICE on August 23, 2013. The main contact on board the SOLSTICE was Nick Asproudas, Environmental Officer (EO) for the SOLSTICE. Prior notification of the visit was given on August 20, 2013 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 SOLSTICE is not approved to discharge wastewater in MOU waters.

The SOLSTICE was built in 2008, and is 1033 feet long with a width of 121 feet. The passenger capacity is approximately 2992 with a crew capacity of about 1230.

The SOLSTICE is scheduled for 19 port calls in Seattle and conducts weekly cruises calling in Seattle on Fridays between May 15, 2013 and September 13, 2013.

Inspection

I arrived and boarded the ship (photos #01 and #07)) at about 9:13 am and began with introductions and a plan for the day with Nick Asproudas, EO. We discussed various waste streams and discharge protocols. We toured the upper deck grass area, the garbage and recycling areas, food waste pulper, the Advanced Wastewater Purification (AWP) system and its laboratory, chemical storage, laundry and photo laboratory. We then reviewed the various discharge and environmental records. The inspection was then finalized with a debriefing and I disembarked the vessel at about 1:10 pm.

The vessel has won in 2012 a corporate award for its dedicated green educational center with its Go Green Kids Program (Celebrity Cruises Destination, Conservation and Education ship of the year 2012). We toured the area which included posters made by kids on cruises at the Team Earth venue area, deck 7 mid (photos #08 and #09).

Discharge Types and Protocols in MOU waters, Washington State waters or the Olympic Coast National Marine Sanctuary (OCNMS) (MOU related waters):

The discharge protocol starts with a voyage plan before the season starts along with staff training on discharge protocols. The voyage plan (photo #02) was reviewed and is consistent with MOU requirements, with no discharges in MOU related waters. The EO also provided maps that show green lines for areas where discharges are allowed and red lines where they are not, which coincides with the voyage plan. The plan and maps are attached. As per the voyage plan if a discharge is to occur at sea condition or with an exception from the company's policy, the Navigational team on the Bridge confirms locations and the EO also verifies and checks for special areas and then the ECR takes the order to proceed with the discharge. There are both physical locks with the 2nd Engineer having the keys, and electronic locks, which record discharge ports. Discharges of blackwater, graywater, wastewater residual solids, oily bilge, pool water, lawn-water and food waste occur outside of MOU related waters, at sea. All discharges are logged also electronically and reviewed by the EO. No discharges of any kind occur in the Olympic Coast National Marine Sanctuary OCNMS. 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. All wastewater discharge records that were reviewed appeared to be in compliance with the MOU and did not occur in MOU waters, Washington State waters or the Olympic Coast National Marine Sanctuary (OCNMS) (MOU related waters).

Residual solids from the AWP are collected in and then either decanted and incinerated or are discharged outside of MOU related waters, at sea.

Oily bilge water is treated with a Marine flocculent oily water separator. A white box is used to only allow discharges at less than 5 ppm oil content maximum. The discharge protocol is to discharge treated oily bilge at less than 5 ppm outside of MOU related waters, at sea. Vessel inspectors from Ecology's Spill Prevention Unit inspected the vessel on two occasions earlier this season.

Ballast water exchanges occurred prior to entering the Alaska voyage season, and if exchanges or ballast tank cleaning is necessary, they are to occur outside of 200 nm from land.

There are three swimming pools (one indoor) and 6 Jacuzzis on the vessel. Pool water is discharged at sea, outside MOU related waters and spa water is sent to gray water tanks and is then discharged at sea and outside MOU related waters. The pool water is also neutralized prior to discharging.

Food waste is collected in various locations, and is then sorted. Some food waste is incinerated (about 40%) and the rest is sent through a food waste pulper system (photo #20) that includes screening (photo #19). Pulped food waste and

galley water is discharged outside of MOU related waters, at sea via a chute with electronic recording. Grease from the galleys is caught via a grease trap and is sent to a tank which is landed in Canada about every 20 days for recycling. Cooking oil (photo #12) is recycled bi monthly at Victoria. Galleys use phosphate free and non-toxic detergents and degreasers.

Decks runoff goes overboard, with best management practices used to keep any contaminated materials from being discharged (photo #05). Only freshwater is used for cleaning while in American Waters. There is no chemical storage on the decks. Above water hull cleaning is done with fresh water only. Paint chipping and painting is not done in Seattle (is done at Skagway AK and Victoria Canada with the use of paint traps with poles and magnets and with the use of cherry-picket with a canvas underneath). There are protocols from the Deck Officer for all maintenance work that is followed. This vessel has real grass (photos #03 and #04) growing on portions of the upper deck (25 % of the outer upper deck is covered with grass /15000 sq ft.). The lawn water goes to a graywater tank and is discharged untreated at sea and outside MOU related waters.

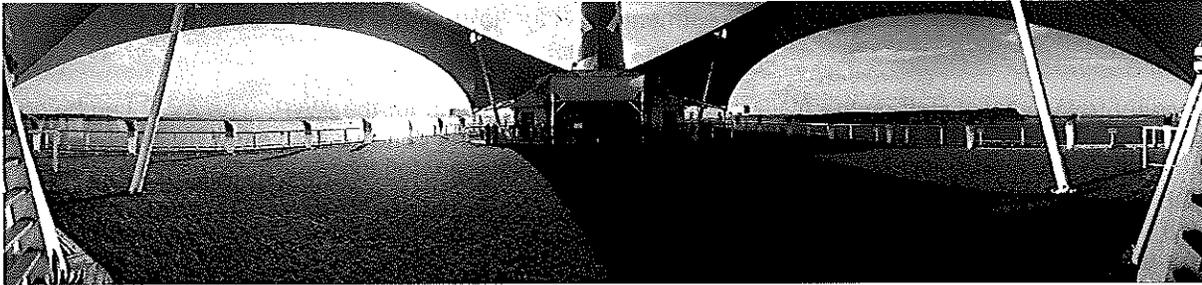


Photo taken by Nick Asproudas on 8-23-13

Dry cleaning is rarely done and uses PERC (photo #43) which is collected, labeled and offloaded to shore as hazardous waste with about 2 drums produced every year and a half. Laundry water is collected and combined with graywater for AWP treatment.

Photo waste that is collected and treated via a silver recovery system (photos #45, #46, and #47) is then offloaded to shore (3 times a month) after testing to less than 5 ppm. Fluorescent bulbs are crushed with a bulb eater (photo #14) that removes mercury vapors and then the bulbs and the mercury cartridges (hazardous waste) are offloaded. Hazardous waste materials include items such as oily sludge, incinerator ash, some aerosols (photo #13) which punctured with aerosol removal system, sharps, used cartridges and filters, and electronics. Hazardous waste (photo #11) is offloaded in Canada. Hazardous waste logs were reviewed and appear to be consistent with MOU requirements.

Unused or outdated pharmaceuticals and narcotics are typically incinerated along with medical waste. All drains in the medical facility go to the blackwater tanks for AWP treatment. Sharps are off-loaded as bio-hazardous waste. Oily rags, dry garbage, paper, and some cardboard are incinerated, along with some of the AWP residual solids. Incinerators are only operated once they are about 1 hour out of Port. Incinerator ash is collected (photo #15) and offloaded as hazardous waste.

Solid waste (garbage, recyclables, etc) is collected (photos #06, #10 and #16), sorted (photo #21) and either reused, recycled, incinerated or offloaded to shore as appropriate. Some recycling, approximately 20%, is offloaded at Seattle. The garbage record book was reviewed and showed consistency with requirements.

Glass (separated by color) (photo #17), broken china, some plastics, scrap metals, batteries, aluminum, some cardboard (photo #18), wood pallets and paper and other items are recycled. Waste minimization efforts include a 50% recycling goal for the cruise line with a 65% goal for these 7 days voyages.

Less than 2% sulfur content is used throughout the route, with 0.0007% MGO being used during parts of the route averaging to less than 1% sulfur content.

Freshwater is produced on board via evaporators, and is very rarely bunkered.

Black water and Gray water System:

The SOLSTICE uses a Kruger Wabag MEMROD LT advanced wastewater treatment system (photo #33) for all blackwater and all graywater. The vessel produces about 900 cubic meters per day, treats at a rate of approximately 40 cubic meters per hour and the treatment system has a capacity of 1600 cubic meters per day. The vessel has about 1200 cubic meters of gray water and treated water tanks and about 1300 cubic meters of ballast tank space. This gives the vessel about two days of holding capacity.

Accommodation gray water (photo #34), laundry water (photo #35) and galley water is sent to gray water holding tanks. Blackwater is collected and then combined with gray water prior to being sent to the screening unit (2mm strainers). There are two screening units (photos #41 and #42) and two bioreactors and membrane units. The liquid from the screens moves on to a collection tank while the solids are sent to a biosludge tank where they are then decanted and incinerated or discharged at sea, outside MOU related waters. Decanted water (centrate) is pumped to the screening units. The liquid then moves to the Bioreactor unit (photo #36). The bioreactor is divided into two chambers with one on standby allowing for maintenance. Air is added to the bioreactor to help with biological degradation of organics. Defoamer can be added as needed. Activated sludge concentration is measured with a TS sensor and pH is monitored (photo #40). Caustic soda can be added for pH control. Liquid then moves to the MEMROD membranes for filtration. There are two chambers in the MEMROD reactor. In each chamber, there are 36 membrane modules in a double decker configuration. On the permeate side, six membrane modules are formed in to a block. The membranes filter to less than 0.2 microns. The membranes are cleaned regularly with a clean in place operation (CIP) and about once a year with a full cleaning and maintenance. Flow circulates from the MEMROD units back to the bioreactors to keep the biological activity going. The permeate from the MEMRODs is then sent to ultraviolet (UV) disinfection (photos #37 and #38) and is then either sent overboard if in an area of allowed discharge, or to treatment tanks for holding and then UV treatment prior to any discharge.

The manufacturer trains vessel staff on the AWP and there is an 3rd Engineer for the AWP. The AWP can be controlled via various access screens (photos #31 and #32). Sampling and analysis is done on the vessel for process control and monitoring. A laboratory (photo #24) on board allows for sampling of pH (photos #26 and #27), chlorine (photo #29), fecal coliform, BOD (photo #25), COD and TSS (photo #28). During the inspection, an effluent sample (photos #22 and #23) was collected and analyzed. They had a pH reading of 7.32, TSS of 7 mg/l, and a chlorine residual of 0.03 mg/l. The fecal coliform analysis was set up, with results the following day (below photo). A sheet in the laboratory (photo #30) recorded readings for influent and effluent with all parameters for the month of August. The daily results are posted every Sunday at the AWP- shared Team room that can be seen fleet-wide.

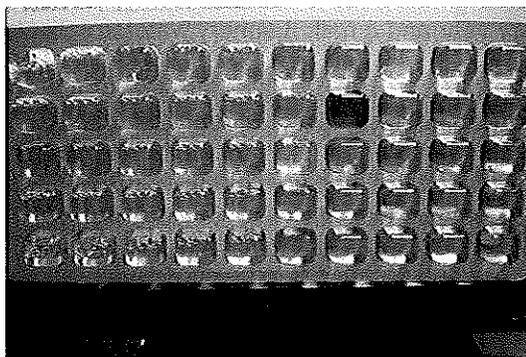


Photo taken by Nick Asproudas on 8-24-13

Conclusions and Recommendations

It is recommended that staff continue to work towards high functioning wastewater treatment systems. The protocols for discharges are very clear. Records were orderly and appeared consistent with the MOU. Staff was very knowledgeable of protocols and treatment systems.

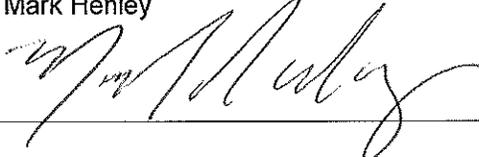
Attachments:

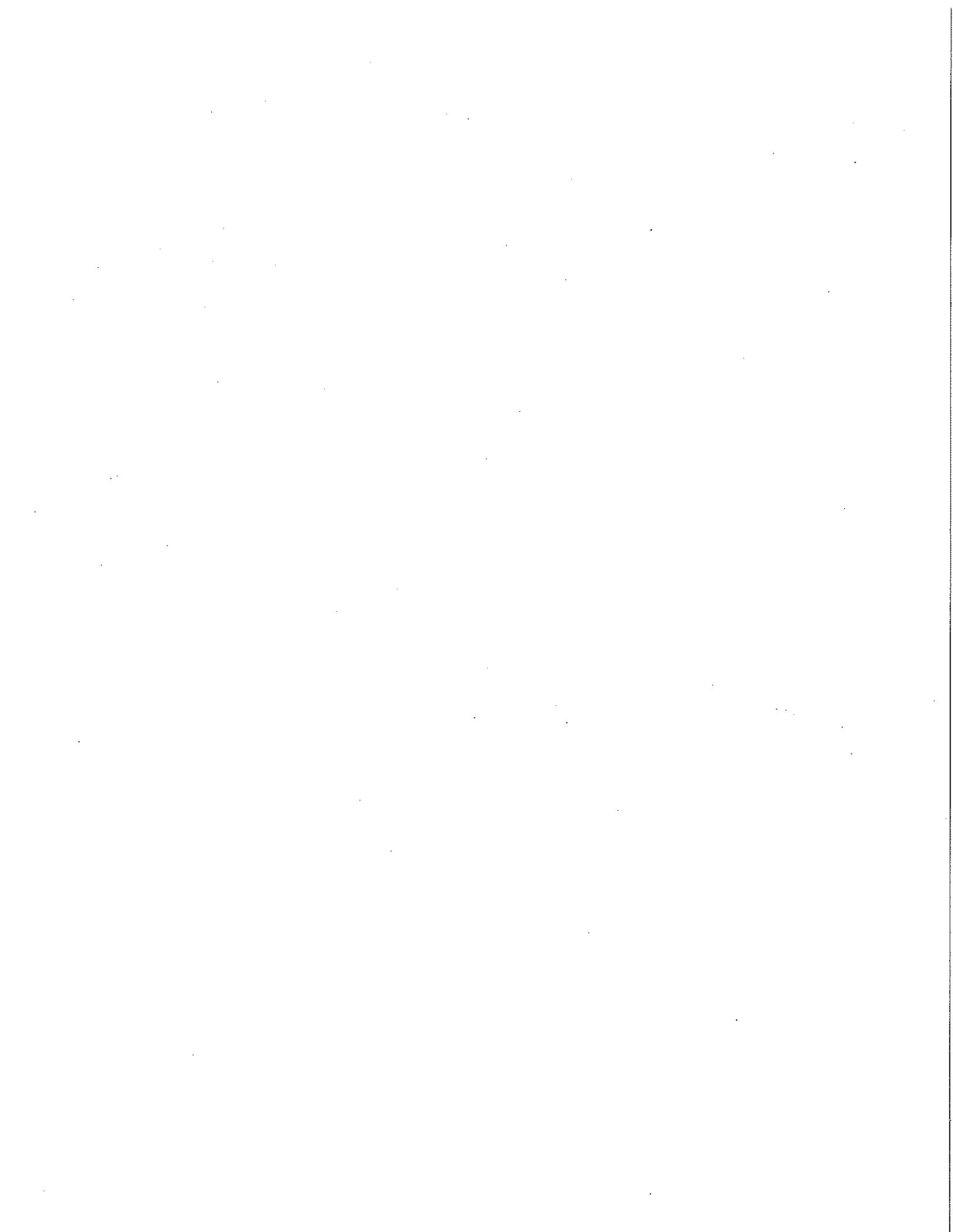
- Photographs
- Voyage plan and maps
- Tank summary

Copies to:

- Rich Pruitt, Director Environmental Programs, Celebrity Cruises
- Nick Asproudas, Environmental Officer, CELEBRITY SOLSTICE
- Mark Toy, Health
- Greg Wirtz, CLIA-NWC
- Donna Spalding, CLIA-NWC
- Stephanie Jones Stebbins, Port of Seattle
- Kevin Fitzpatrick, Ecology
- Mark Henley, Ecology
- Amy Jankowiak, Ecology
- Central Files: Celebrity Cruises – SOLSTICE; WQ 6.1

Section H: Signatures

<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> 10/15/13</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> 10/16/13</p>



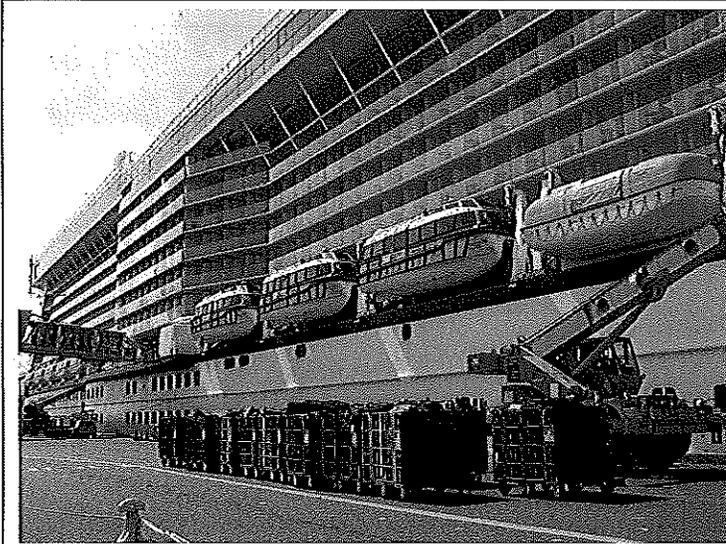


PHOTO #:01 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230390
DESCRIPTION: CELEBRITY SOLSTICE VESSEL

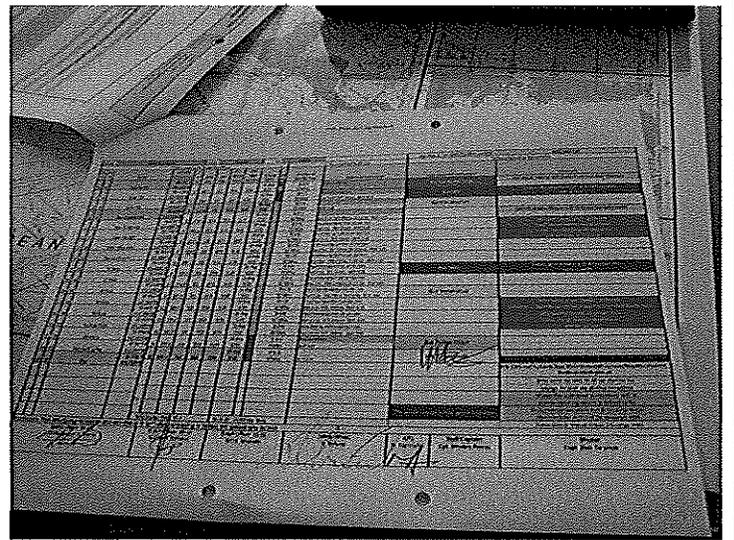


PHOTO #:02 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230318
DESCRIPTION: DISCHARGE PROTOCOLS

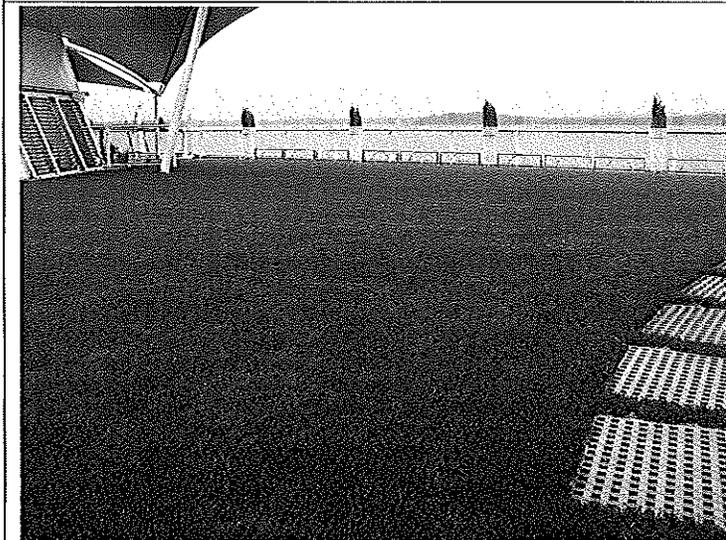


PHOTO #:03 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230322
DESCRIPTION: GRASS ON DECK



PHOTO #:04 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230323
DESCRIPTION: GRASS ON DECK



PHOTO #:05 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230325
DESCRIPTION: NO DUMING GARBAGE SIGN ON DECK



PHOTO #:06 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230326
DESCRIPTION: RECYCLING BINS FOR GUESTS ON DECK



PHOTO #:07 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230328
DESCRIPTION: LARGE TREE IN LOBBY AREA



PHOTO #:08 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230330
DESCRIPTION: GO GREEN KIDS PROGRAM



PHOTO #:09 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230331
DESCRIPTION: GO GREEN KIDS PROGRAM EDUCATION CENTER



PHOTO #:10 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230332
DESCRIPTION: GARBAGE TO BE PROCESSED

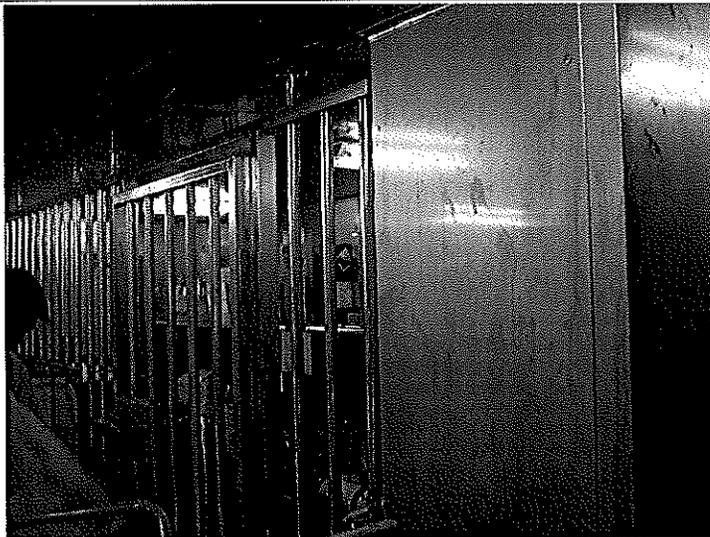


PHOTO #:11 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230333
DESCRIPTION: HAZARDOUS WASTE STORAGE (BEHIND BARS)

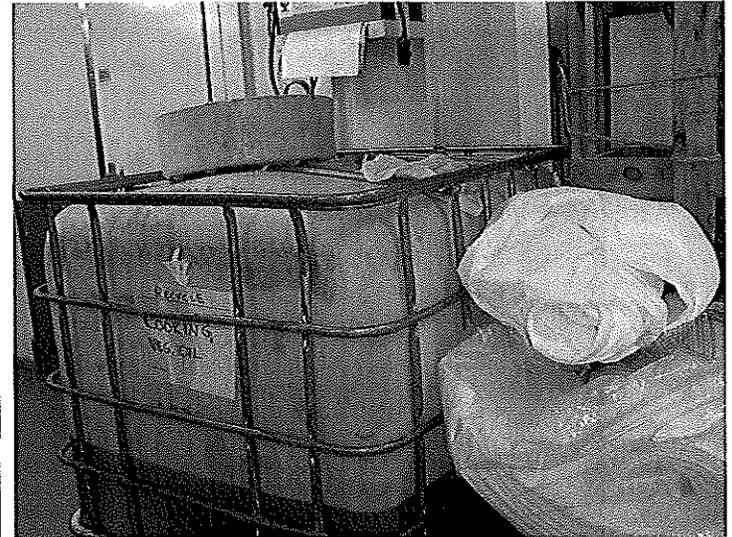


PHOTO #:12 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230334
DESCRIPTION: USED COOKING OIL STORAGE FOR RECYCLING

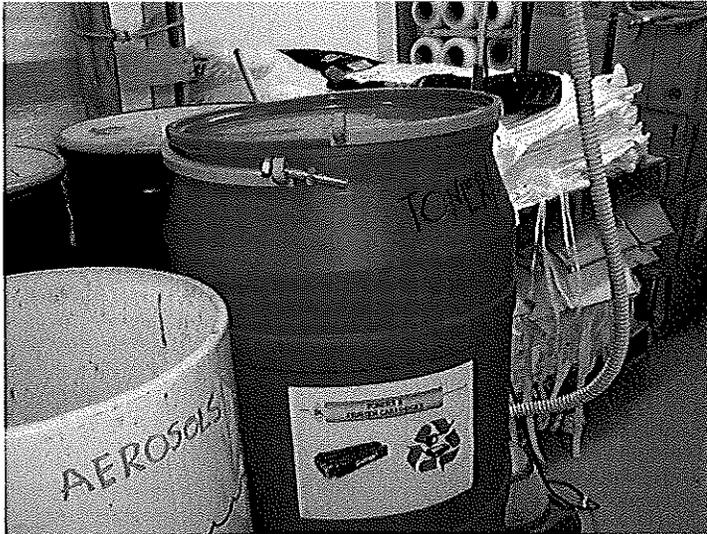


PHOTO #:13 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230335
DESCRIPTION: AERSOLS/TONER COLLECTION

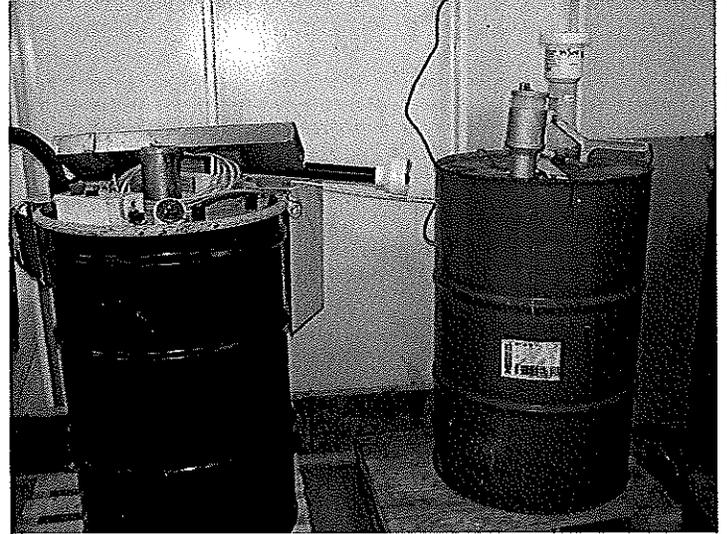


PHOTO #:14 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230336
DESCRIPTION: BULB CRUSHER (MERCURY REMOVAL SYSTEM)
AND AEROSOL REMOVAL SYSTEM (RED)



PHOTO #:15 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230338
DESCRIPTION: INCINERATOR ASH COLLECTION



PHOTO #:16 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230339
DESCRIPTION: GARBAGE AND RECYCLING SORTING AND
INCINERATORS (UNDERNEATH)



PHOTO #:17 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230340
DESCRIPTION: GLASS SEPARATED BY COLOR FOR RECYCLING
OFFLOAD



PHOTO #:18 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230341
DESCRIPTION: USED CARDBOARD FOR RECYCLING OFFLOAD

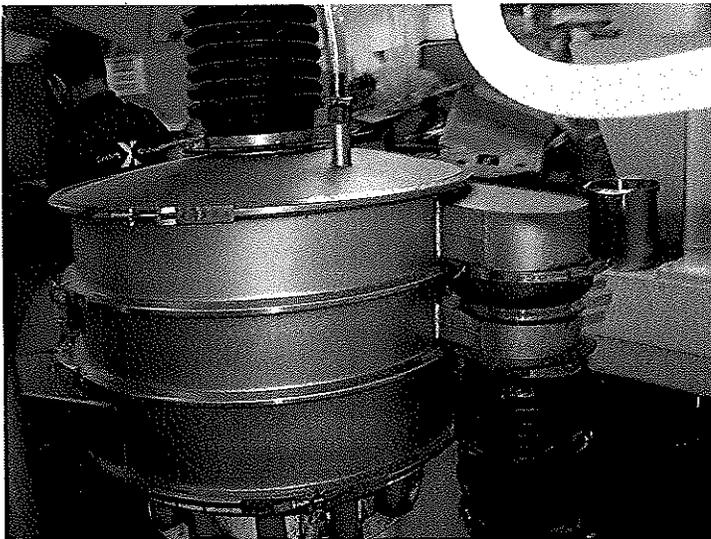


PHOTO #:19 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230344
DESCRIPTION: SHAKER (SWECO) FILTER FOR FOOD WASTE
PULPER SYSTEM

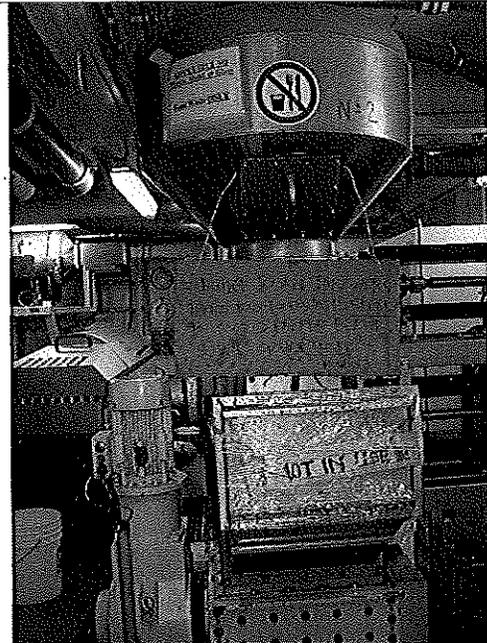


PHOTO #:20 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230345
DESCRIPTION: FOOD WASTE PULPER SYSTEM



PHOTO #:21 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230346
DESCRIPTION: RECYCLING SORTING

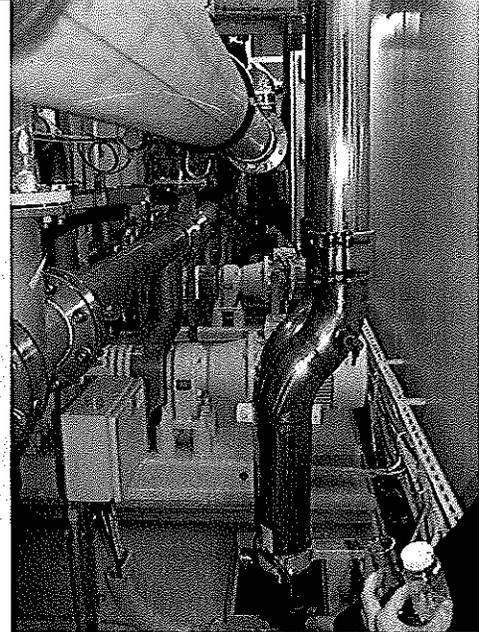


PHOTO #:22 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230351
DESCRIPTION: AWP EFFLUENT SAMPLING POINT

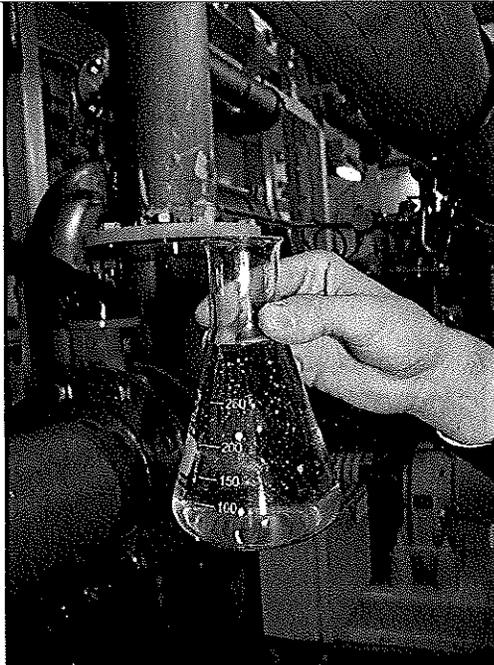


PHOTO #:23 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230352
DESCRIPTION: AWP EFFLUENT SAMPLE



PHOTO #:24 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230361
DESCRIPTION: AWP SAMPLING LAB



PHOTO #:25 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230349
DESCRIPTION: AWP LAB - BOD INCUBATOR



PHOTO #:26 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230358
DESCRIPTION: AWP LAB - PH READING (7.32)

bioreactor inlet flow day	139 m ³
bioreactor inlet flow day before	305 m ³
bioreactor 1 inlet flow day before	140 m ³
bioreactor 2 inlet flow day before	165 m ³
pH outlet bioreactor (761A2010)	6.94 pH
value day before minimum	7.02 pH
value day before maximum	7.60 pH
excess sludge actual day	26.89 m ³
excess sludge day before	14.32 m ³

PHOTO #:27 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230359
DESCRIPTION: AWP LAB - SCREEN READING OF PH (6.94)



PHOTO #:28 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230360
DESCRIPTION: AWP LAB - TSS EFFLUENT (7 MG/L)



PHOTO #:29 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230364
DESCRIPTION: AWP LAB – CHLORINE READING (0.003 MG/L)

August 2013														
DATE	Influent					Permeate								
	COO (PPM)	AMNH (PPM)	NO3N (PPM)	PH	TS (PPM)	COO (PPM)	COO (PPM)	NO3N (PPM)	NO3N (PPM)	COO (PPM)	TS (PPM)	PH	TS (PPM)	PH
1	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
2	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
3	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
4	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
5	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
6	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
7	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
8	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
9	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
10	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
11	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
12	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
13	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
14	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
15	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
16	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
17	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
18	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
19	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
20	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
21	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
22	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
23	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
24	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
25	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
26	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
27	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
28	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
29	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2
30	1121	4.5	1.0	7.2	11.1	0.1	0.1	0.1	0.1	0.1	0.1	7.2	11.1	7.2

PHOTO #:30 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230357
DESCRIPTION: AWP LAB - AUGUST AWP SAMPLING RESULTS

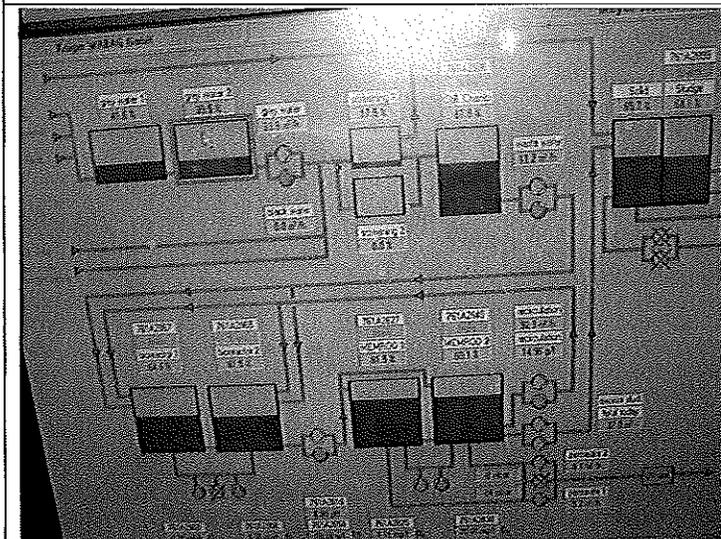


PHOTO #:31 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230368
DESCRIPTION: SCREEN SHOT OF AWP

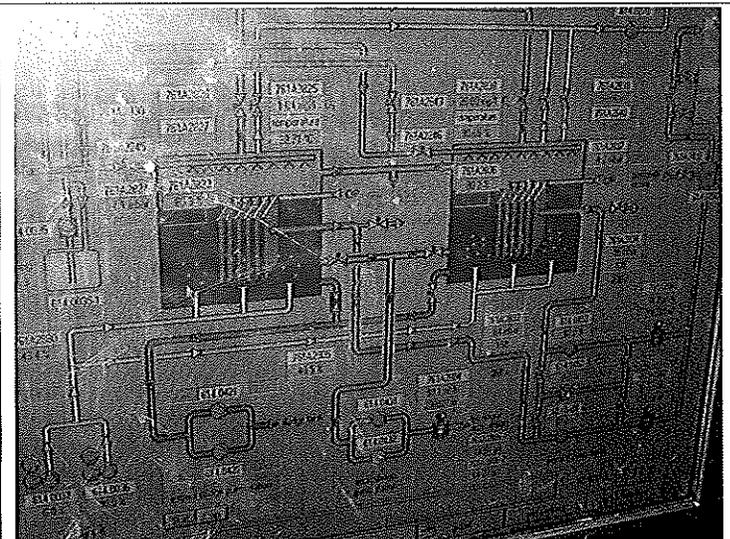


PHOTO #:32 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230356
DESCRIPTION: SCREEN SHOT OF AWP

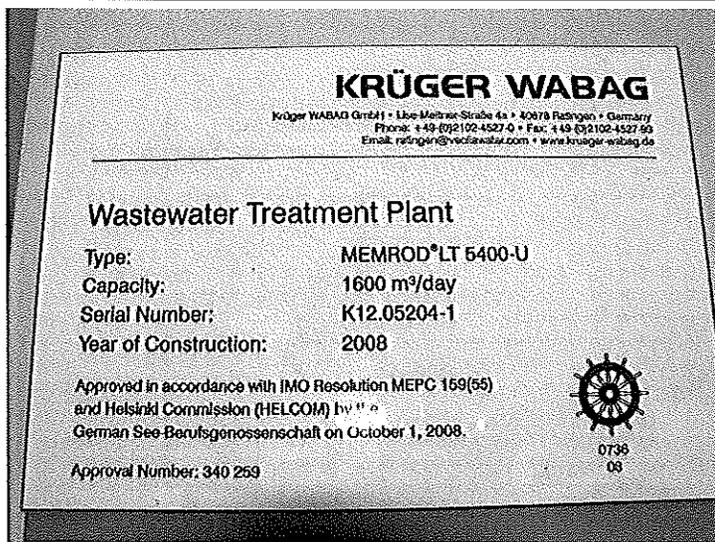


PHOTO #:33 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230374
DESCRIPTION: NAME PLATE FOR AWP SYSTEM

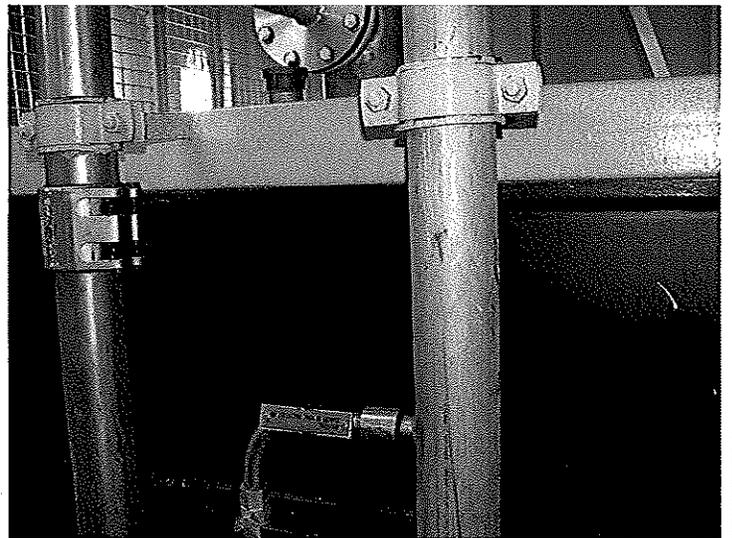


PHOTO #:34 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230377
DESCRIPTION: GRAY WATER COLLECTION TANK

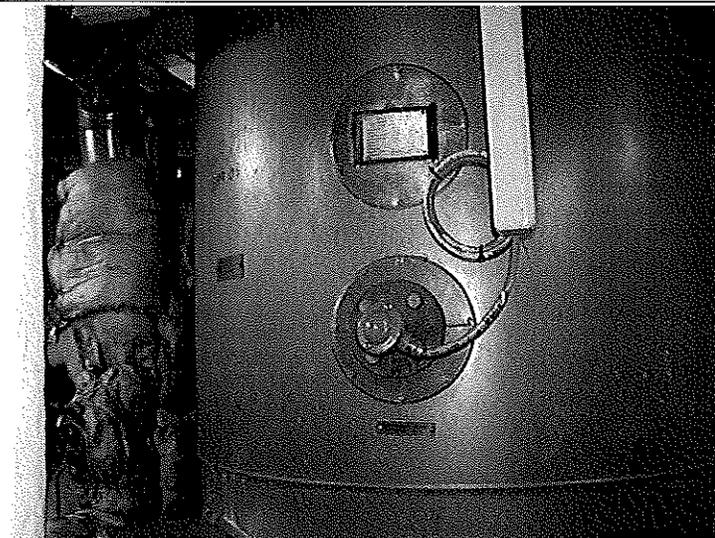


PHOTO #:35 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230378
DESCRIPTION: LAUNDRY COLLECTION TANK



PHOTO #:36 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230355
DESCRIPTION: AWP - MEMBRANE BIOREACTOR TANK

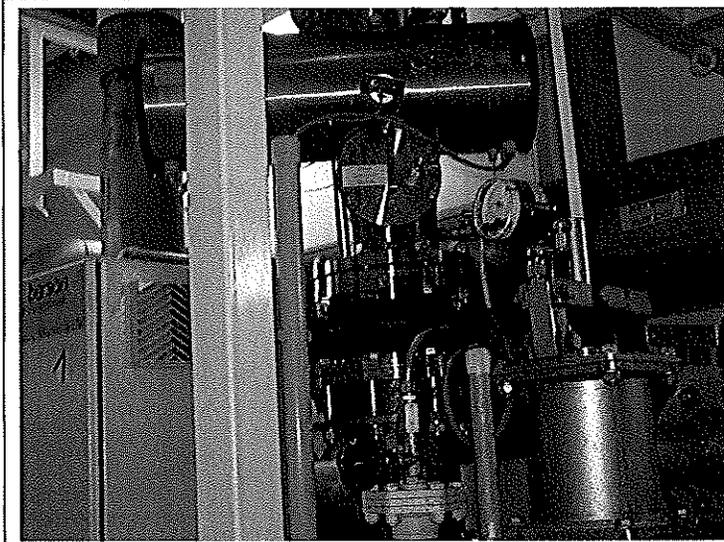


PHOTO #:37 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230353
DESCRIPTION: AWP - ULTRAVIOLET DISINFECTION UNIT (1 OF 2)

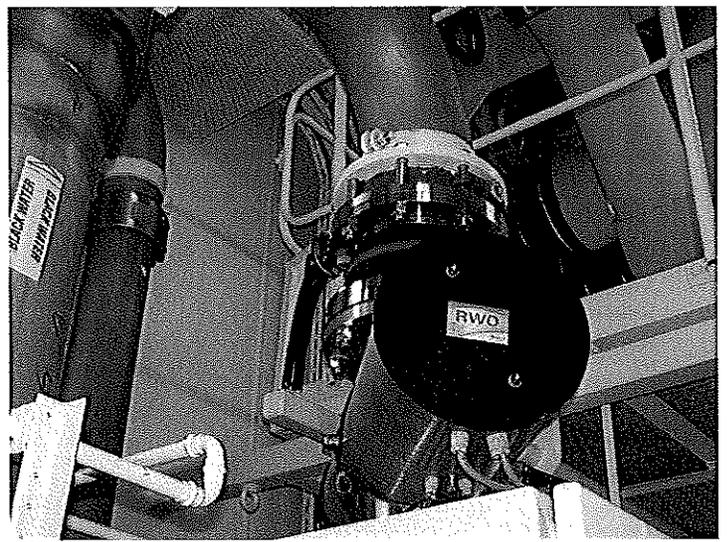


PHOTO #:38 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230354
DESCRIPTION: AWP - ULTRAVIOLET DISINFECTION UNIT (2 OF 2)

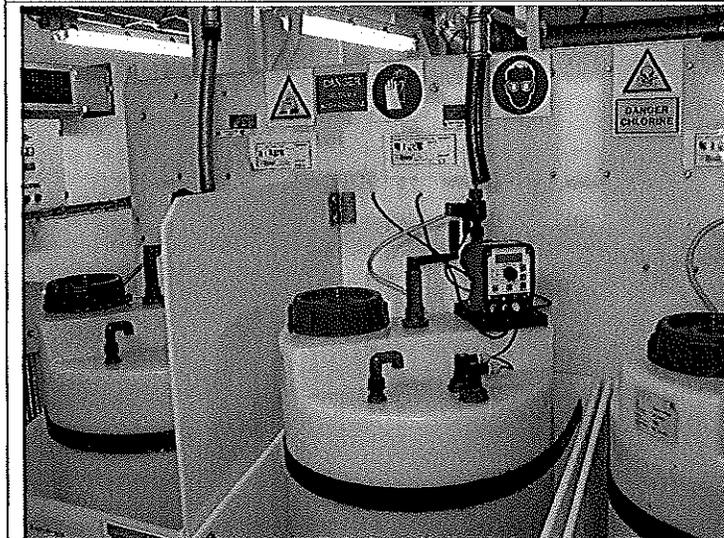


PHOTO #:39 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230375
DESCRIPTION: AWP AND OTHER SYSTEM CHEMICALS – SULFURIC ACID, SODIUM HYPOCHLORITE AND SODIUM BISULFITE

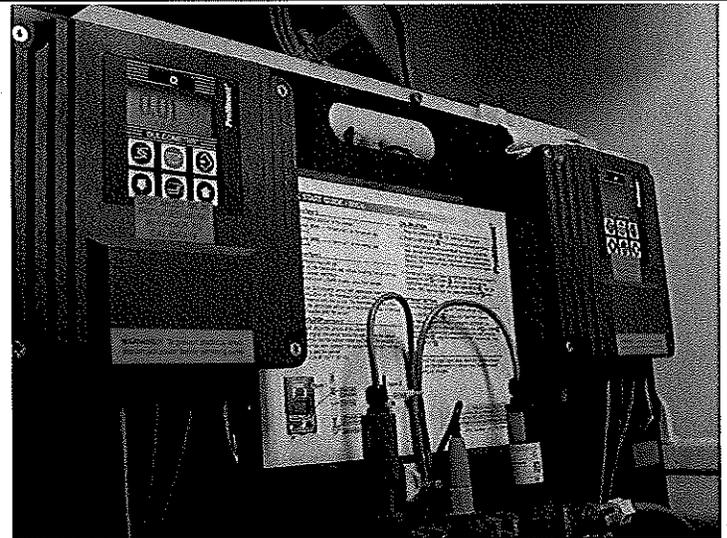


PHOTO #:40 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230379
DESCRIPTION: AWP – PH AND CHLORINE RESIDUAL ON-LINE METERS

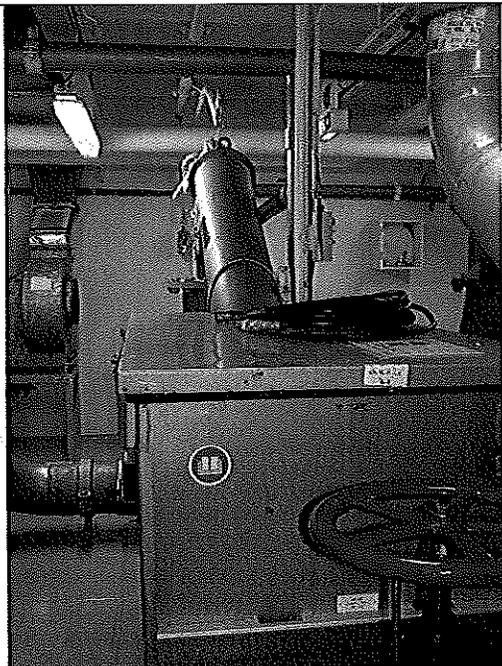


PHOTO #:41 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230383
DESCRIPTION: AWP – INITIAL SCREENS



PHOTO #:42 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230384
DESCRIPTION: AWP – INITIAL SCREENS



PHOTO #:43 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230385
DESCRIPTION: DRY CLEANING WASTE CHEMICALS

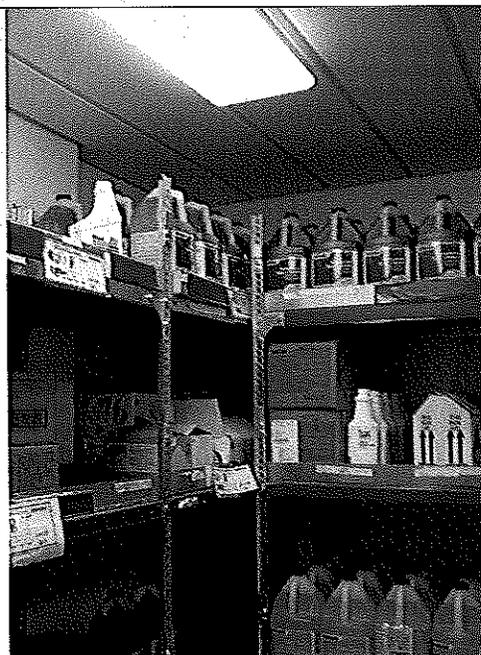


PHOTO #:44 AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230386
DESCRIPTION: PHOTO CHEMICAL STORAGE

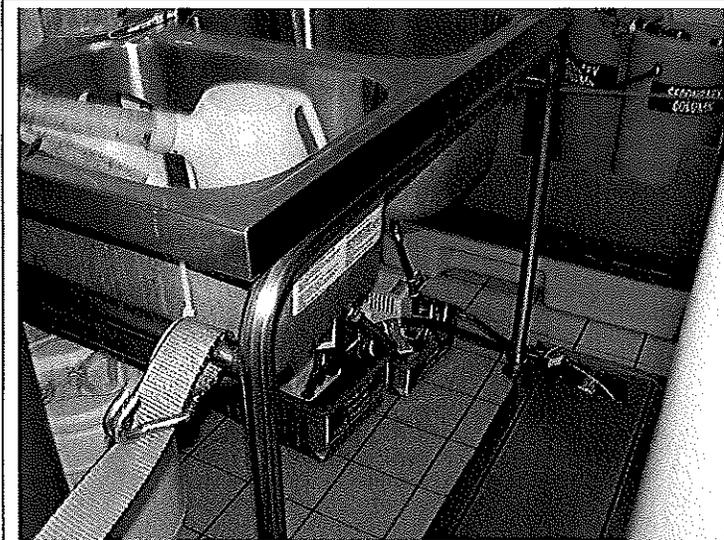


PHOTO #:45 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230387
DESCRIPTION: PHOTO CHEMICAL TREATMENT SYSTEM



PHOTO #:46 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230388
DESCRIPTION: PHOTO CHEMICAL SILVER RECOVERY SYSTEM

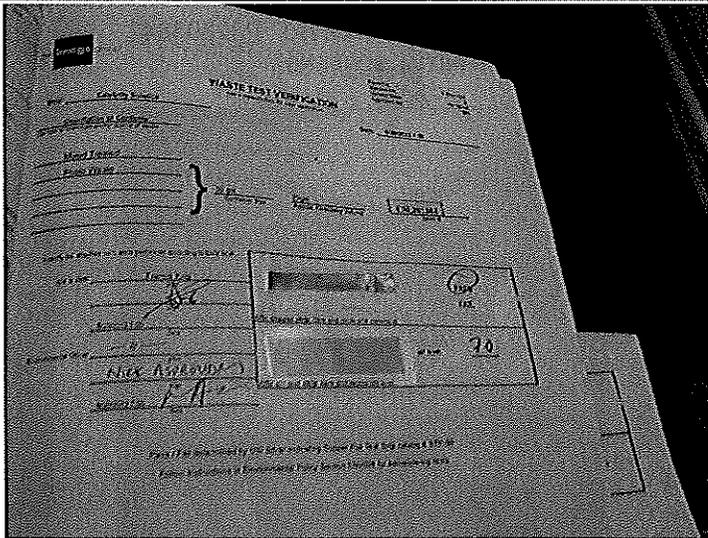


PHOTO #:47 DATE: AUGUST 23, 2013
TAKEN BY: AMY JANKOWIAK FILE No.: P8230389
DESCRIPTION: PHOTO WASTE SAMPLE LOG

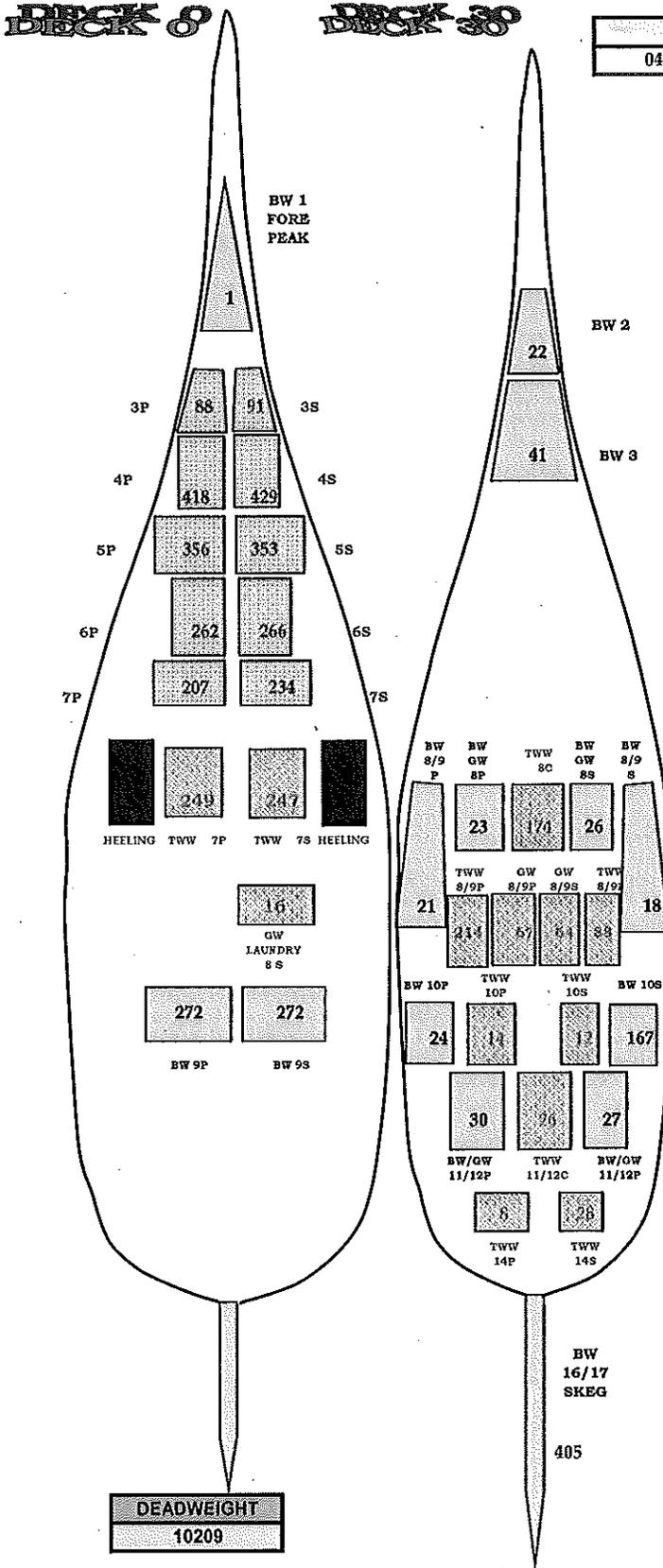
Condition of Potable and Ballast Water Tanks

Potable			
Tank	Total	%	Actual
3P	242.37	36.31	88.00
3S	242.37	37.55	91.00
4P	467.04	89.30	418.00
4S	467.04	91.85	429.00
5P	409.66	86.30	356.00
5S	409.66	86.37	353.00
6P	513.21	51.05	262.00
6S	552.50	48.14	266.00
7P	207.50	99.75	207.00
7S	234.14	99.94	234.00
Total	3745.49	72.19	2704.00
Previous:			2822.00
Balance:			-118.00
Production tons/hour:			
Receiving tons/hour:			

Technical			
Tank	Total	%	Actual
TW 10-1C	60.52	90.88	55.00
TW 10-2C	89.11	92.02	82.00
Total	149.63	91.56	137.00

Ballast			
Tank	Total	%	Actual
BW 1 Fore Peak	841.22	0.12	1.00
BW 2	200.74	10.96	22.00
BW 3/4	262.63	15.61	41.00
BW/GW 8P	279.65	8.22	23.00
BW/GW 8S	246.27	10.56	26.00
BW 8/9P	270.74	7.76	21.00
BW 8/9S	237.59	7.58	18.00
BW/GW 11/12P	260.36	11.52	30.00
BW/GW 11/12S	235.10	11.48	27.00
BW 9P	276.60	98.34	272.00
BW 9S	276.60	98.34	272.00
BW 10P	182.79	13.13	24.00
BW 10S	182.79	91.36	167.00
BW 16/17 SKEG	436.66	92.75	405.00
Total	4189.74	32.20	1349.00

GW/Ballast Water			
Tank	Total	%	Actual
GW 8/9P	118.82	56.39	67.00
GW 8/9S	118.82	53.86	64.00
GW 8 Laundry	117.04	13.67	16.00
TWW 10P	155.62	9.00	14.00
TWW 10S	155.62	7.71	12.00
TWW 7P	271.99	91.55	249.00
TWW 7S	271.99	90.81	247.00
TWW 8C	194.24	89.58	174.00
TWW 14P	68.81	11.63	8.00
TWW 14S	68.81	40.69	28.00
TWW 8/9P	245.06	87.33	214.00
TWW 8/9S	245.06	35.91	88.00
TWW 11/12C	252.47	10.30	26.00
Total	2284.35	52.84	1207.00
Previous:			1060.00
Balance:			147.00

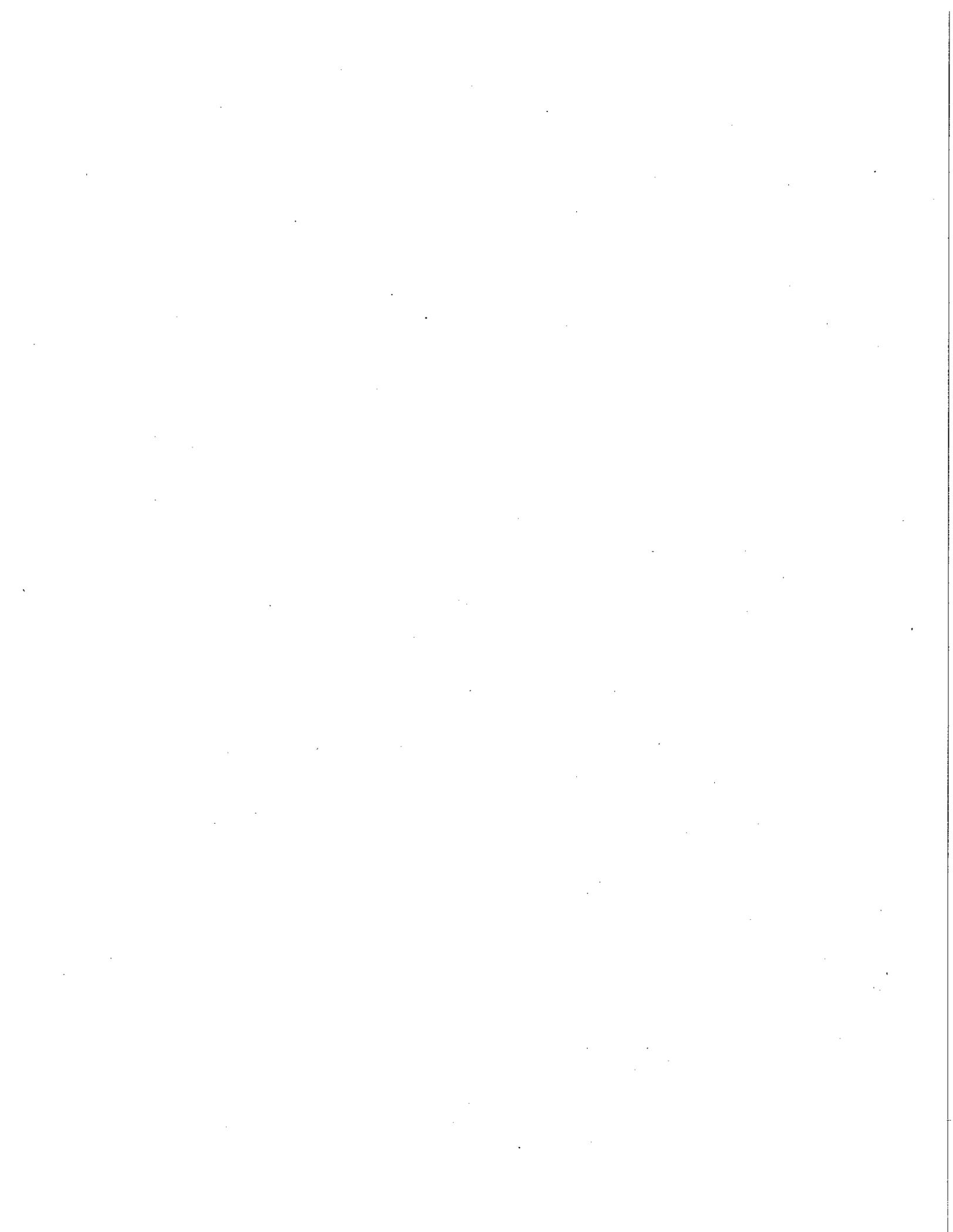


DEADWEIGHT		
Draughts	Visual	Napa
Fwd		8.92
Mid		8.48
Aft		8.33
Trim		0.59

GM		
Actual	Required	
2.76	2.56	0.20

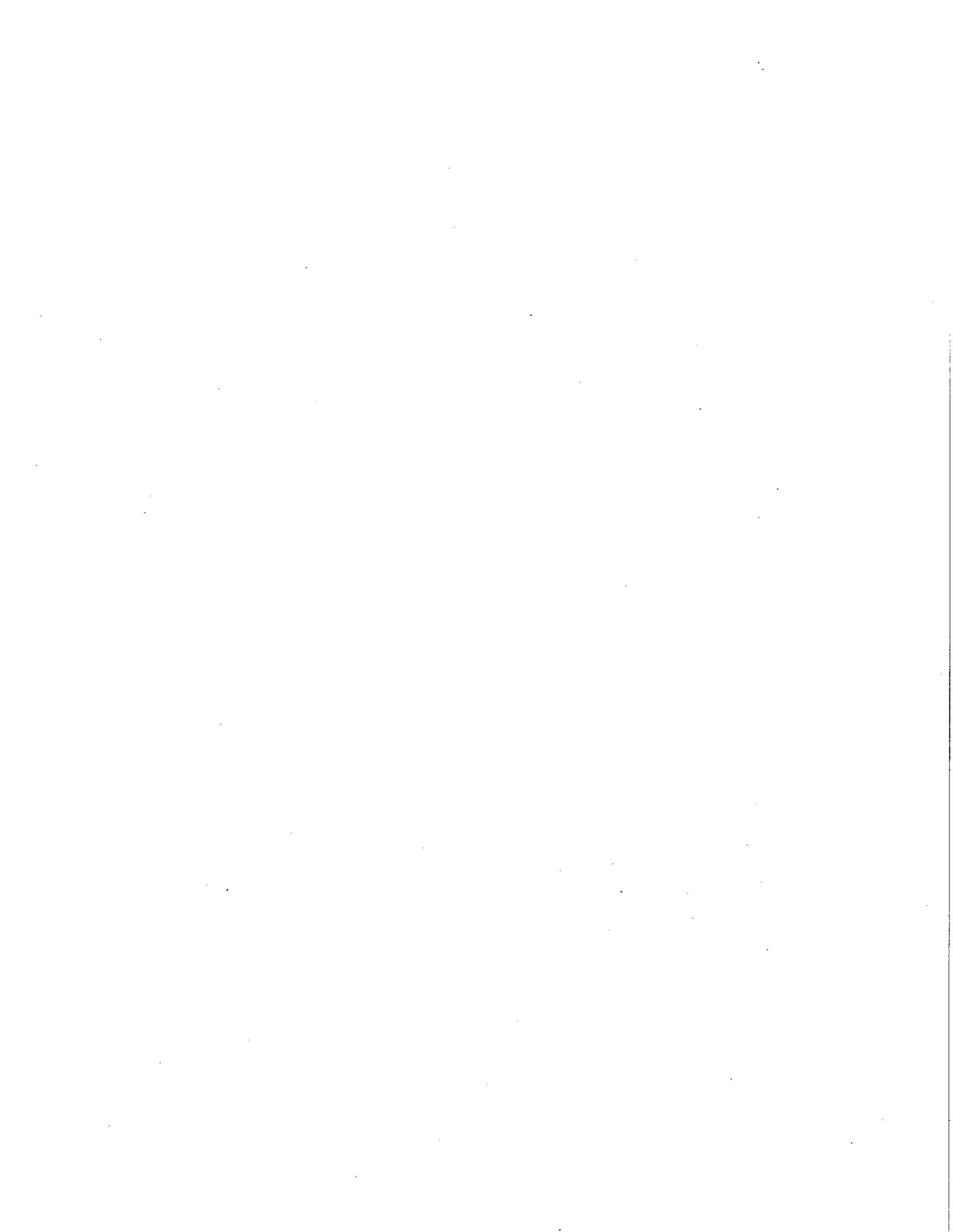
SF max	92%
BM max	35%

ENIRAM	
Actual	Optimal



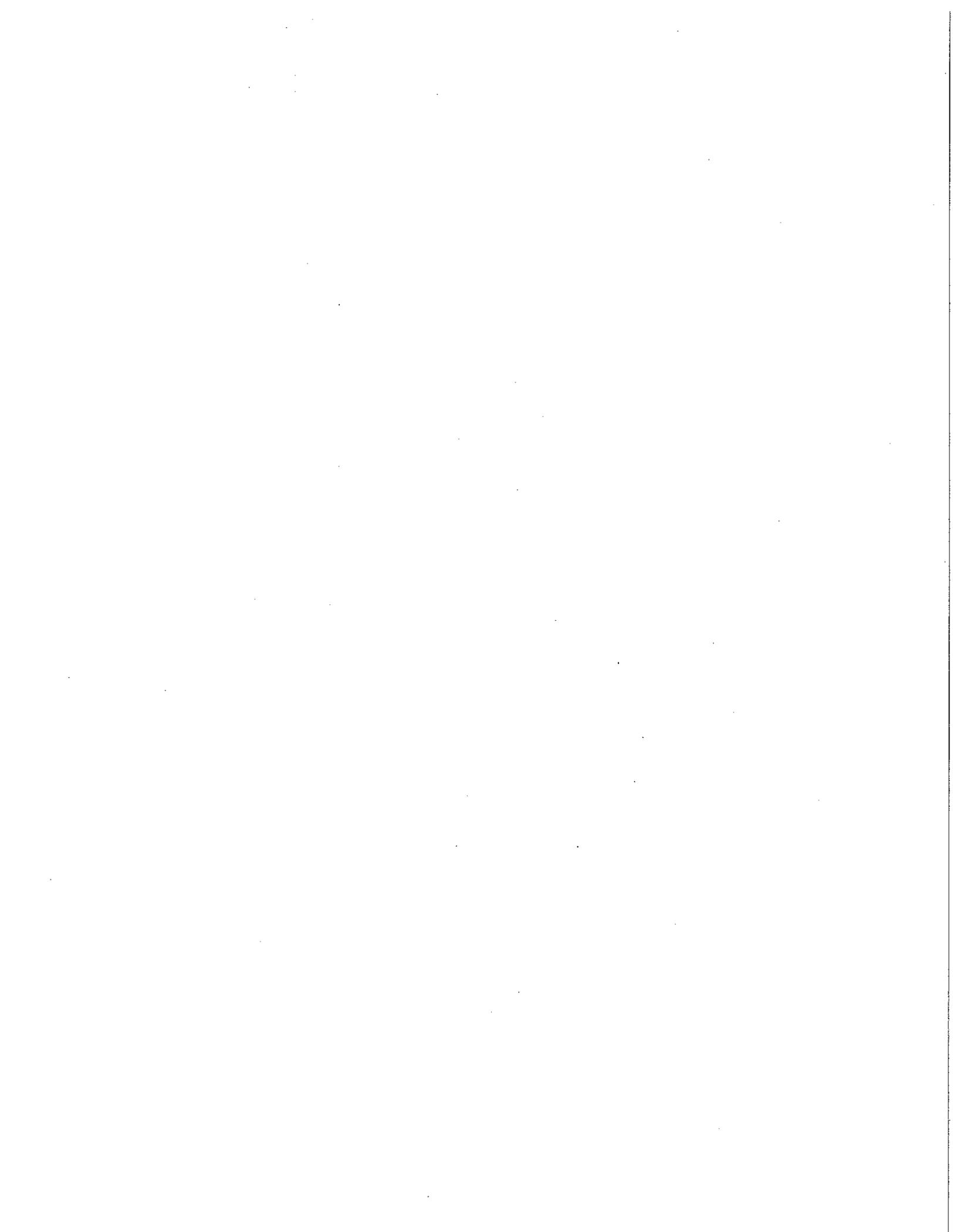
VESSEL:		Celebrity Solstice			Seattle			Ketchikan			Page 1 of 3			Dep. Date & Time (MM/DD/YYYY) HH:MM/PL=	
		To be completed by Navigation Officer			To be completed by Navigation Officer			To be completed by Master			To be completed by Watch Officer			8/23/2013 17:00	
W/P #	WP #	NAME	LAT/ION DD/MM/NN	L	TRUE CCR	DIST. NM	EST. SPEED Knots	EST. TIME HH:MM	ETA @ WPT	ZD CH	Fix Interval and Method	Additional Instructions	Environmental Instructions	Comments	
1	1	Pier	47.3768 N	1	0.6	3.0	0.13	17:12	23-Aug	R-V-G	Red Condition	Monitor Seattle Ch 16 & Seattle Traffic on Ch 5A			
2	2	Turning Basin	47.3706 N	2	2.6	12.0	0.13	17:25	23-Aug	R-V-G	Hand Steering and Pilot with the Conn				
3	3	Entering TSS	47.3700 W	3	355.4	2.5	17.0	17:34	23-Aug	R-V-G	Hand Steering and Pilot with the Conn - WOP:0.97				
4	4	SG Buoy	47.4000 N	4	010.2	6.1	17.0	17:56	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min, Pt: 0.5 nm WOP: 1.83				
5	5	SG Buoy	47.4600 N	5	346.3	10.0	17.0	18:31	23-Aug	R-V-G	Hand Steering and Pilot with the Conn	Start Incinerators			
6	6	SE Buoy	47.5570 N	6	305.1	4.4	17.0	18:46	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.00				
7	7	SD Buoy	47.5820 W	7	331.0	4.3	17.0	19:01	23-Aug	R-V-G	Hand Steering and Pilot with the Conn	Run HFO			
8	8	SC Buoy	48.0195 N	8	348.0	5.2	17.0	19:20	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.09				
9	9	Marrowstone Pt	48.0700 W	9	310.9	6.7	17.0	19:43	23-Aug	R-V-G	Hand Steering and Pilot with the Conn				
10	10	SA Buoy (East of)	48.1180 N	10	281.7	2.0	17.0	19:50	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.21				
11	11	SA Buoy	48.1270 W	11	274.6	11.3	17.0	20:30	23-Aug	R-V-G	Hand Steering and Pilot with the Conn				
12	12	S Buoy	48.0660 W	12	250.3	11.3	17.0	21:10	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 0.41				
13	13	Port Angeles P/S	48.2250 W	13	325.6	5.0	17.5	21:27	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.68				
14	14	"PA" Buoy	48.1300 N	14	316.2	3.2	17.5	21:38	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 0.49				
15	15	SSE Race Rocks	48.1530 W	15	276.5	16.8	17.5	22:36	23-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.61				
16	16	Sheringham Point	48.1720 N	16	292.5	36.4	17.5	2:05	24-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 0.73				
17	17	"IA" Buoy	48.3110 N	17	370.0	16.9	17.5	0:59	24-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 0.35	SG Condition			
18	18	48.4690 N	48.4690 N	18	296.4	35.6	17.5	2:02	24-Aug	R-V-G	Red: 4 nm - ROT: 47/min - WOP: 1.11				
19	19	Buoy 46206	50.0000 N	19	309.5	114.9	17.5	6:34	10-15	30 Mins	Red: 4 nm - ROT: 47/min - WOP: 0.63				
20	20	C.Cook	126.1500 W	20	314.3	63.3	17.5	3:37	13-52	30 Mins	Red: 4 nm - ROT: 47/min - WOP: 0.31				
21	21	Scott Islands	50.4420 N	21	129.2590 W	Total Voyage Dist. = 359.1	00-20-52	=Total Voy. Time							

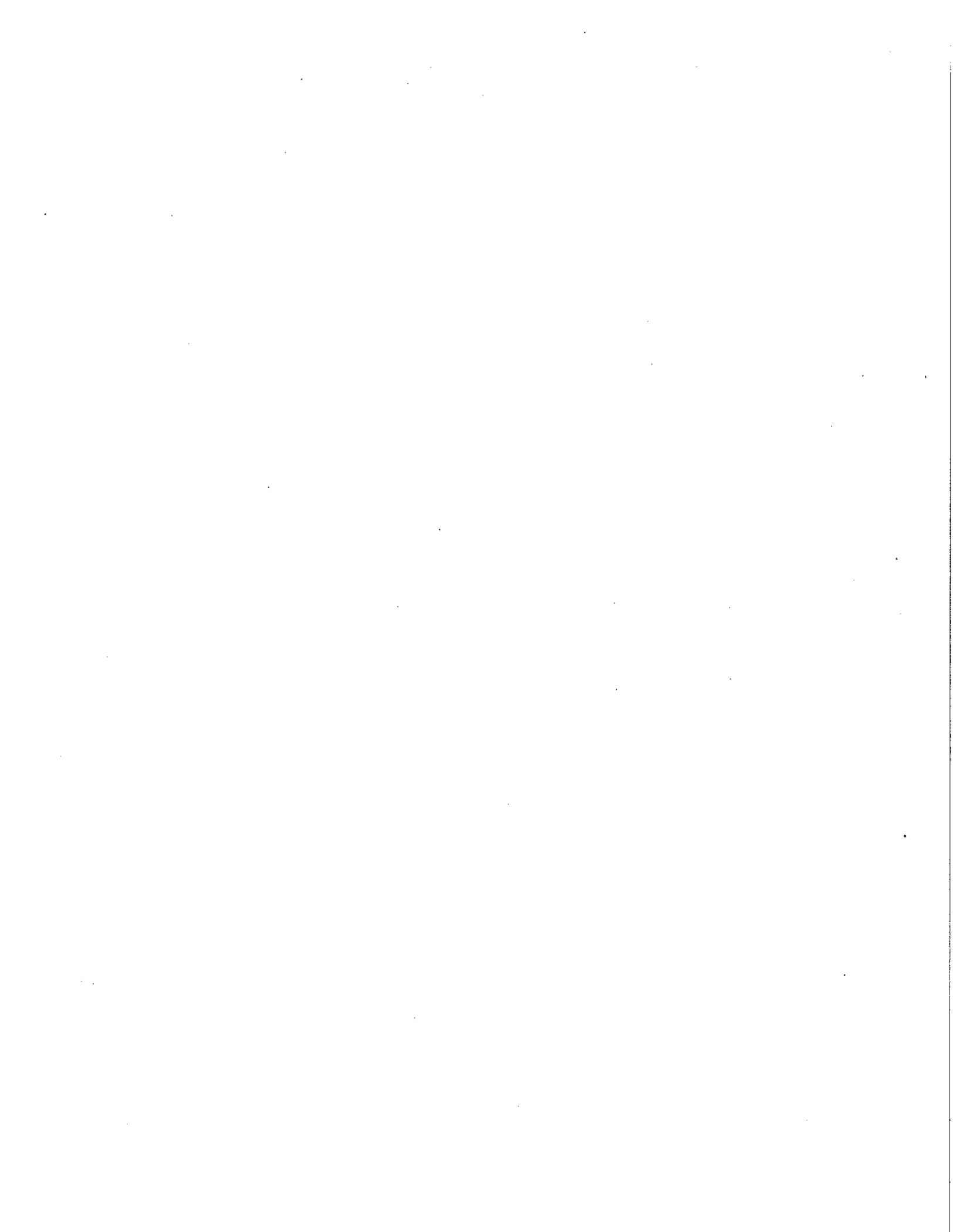
Final Remarks: Track 0041. Charts to be used: BA 50-47-46-4950-4947-4945-4944-4943-4942-4928-4926-4925-4924-4923-4922-4921-4920-4919-4918-4917-4916-4915-4914-4913-4912-4911-4910-4909-4908-4907-4906-4905-4904-4903-4902-4901-4900-4899-4898-4897-4896-4895-4894-4893-4892-4891-4890-4889-4888-4887-4886-4885-4884-4883-4882-4881-4880-4879-4878-4877-4876-4875-4874-4873-4872-4871-4870-4869-4868-4867-4866-4865-4864-4863-4862-4861-4860-4859-4858-4857-4856-4855-4854-4853-4852-4851-4850-4849-4848-4847-4846-4845-4844-4843-4842-4841-4840-4839-4838-4837-4836-4835-4834-4833-4832-4831-4830-4829-4828-4827-4826-4825-4824-4823-4822-4821-4820-4819-4818-4817-4816-4815-4814-4813-4812-4811-4810-4809-4808-4807-4806-4805-4804-4803-4802-4801-4800-4799-4798-4797-4796-4795-4794-4793-4792-4791-4790-4789-4788-4787-4786-4785-4784-4783-4782-4781-4780-4779-4778-4777-4776-4775-4774-4773-4772-4771-4770-4769-4768-4767-4766-4765-4764-4763-4762-4761-4760-4759-4758-4757-4756-4755-4754-4753-4752-4751-4750-4749-4748-4747-4746-4745-4744-4743-4742-4741-4740-4739-4738-4737-4736-4735-4734-4733-4732-4731-4730-4729-4728-4727-4726-4725-4724-4723-4722-4721-4720-4719-4718-4717-4716-4715-4714-4713-4712-4711-4710-4709-4708-4707-4706-4705-4704-4703-4702-4701-4700-4699-4698-4697-4696-4695-4694-4693-4692-4691-4690-4689-4688-4687-4686-4685-4684-4683-4682-4681-4680-4679-4678-4677-4676-4675-4674-4673-4672-4671-4670-4669-4668-4667-4666-4665-4664-4663-4662-4661-4660-4659-4658-4657-4656-4655-4654-4653-4652-4651-4650-4649-4648-4647-4646-4645-4644-4643-4642-4641-4640-4639-4638-4637-4636-4635-4634-4633-4632-4631-4630-4629-4628-4627-4626-4625-4624-4623-4622-4621-4620-4619-4618-4617-4616-4615-4614-4613-4612-4611-4610-4609-4608-4607-4606-4605-4604-4603-4602-4601-4600-4599-4598-4597-4596-4595-4594-4593-4592-4591-4590-4589-4588-4587-4586-4585-4584-4583-4582-4581-4580-4579-4578-4577-4576-4575-4574-4573-4572-4571-4570-4569-4568-4567-4566-4565-4564-4563-4562-4561-4560-4559-4558-4557-4556-4555-4554-4553-4552-4551-4550-4549-4548-4547-4546-4545-4544-4543-4542-4541-4540-4539-4538-4537-4536-4535-4534-4533-4532-4531-4530-4529-4528-4527-4526-4525-4524-4523-4522-4521-4520-4519-4518-4517-4516-4515-4514-4513-4512-4511-4510-4509-4508-4507-4506-4505-4504-4503-4502-4501-4500-4499-4498-4497-4496-4495-4494-4493-4492-4491-4490-4489-4488-4487-4486-4485-4484-4483-4482-4481-4480-4479-4478-4477-4476-4475-4474-4473-4472-4471-4470-4469-4468-4467-4466-4465-4464-4463-4462-4461-4460-4459-4458-4457-4456-4455-4454-4453-4452-4451-4450-4449-4448-4447-4446-4445-4444-4443-4442-4441-4440-4439-4438-4437-4436-4435-4434-4433-4432-4431-4430-4429-4428-4427-4426-4425-4424-4423-4422-4421-4420-4419-4418-4417-4416-4415-4414-4413-4412-4411-4410-4409-4408-4407-4406-4405-4404-4403-4402-4401-4400-4399-4398-4397-4396-4395-4394-4393-4392-4391-4390-4389-4388-4387-4386-4385-4384-4383-4382-4381-4380-4379-4378-4377-4376-4375-4374-4373-4372-4371-4370-4369-4368-4367-4366-4365-4364-4363-4362-4361-4360-4359-4358-4357-4356-4355-4354-4353-4352-4351-4350-4349-4348-4347-4346-4345-4344-4343-4342-4341-4340-4339-4338-4337-4336-4335-4334-4333-4332-4331-4330-4329-4328-4327-4326-4325-4324-4323-4322-4321-4320-4319-4318-4317-4316-4315-4314-4313-4312-4311-4310-4309-4308-4307-4306-4305-4304-4303-4302-4301-4300-4299-4298-4297-4296-4295-4294-4293-4292-4291-4290-4289-4288-4287-4286-4285-4284-4283-4282-4281-4280-4279-4278-4277-4276-4275-4274-4273-4272-4271-4270-4269-4268-4267-4266-4265-4264-4263-4262-4261-4260-4259-4258-4257-4256-4255-4254-4253-4252-4251-4250-4249-4248-4247-4246-4245-4244-4243-4242-4241-4240-4239-4238-4237-4236-4235-4234-4233-4232-4231-4230-4229-4228-4227-4226-4225-4224-4223-4222-4221-4220-4219-4218-4217-4216-4215-4214-4213-4212-4211-4210-4209-4208-4207-4206-4205-4204-4203-4202-4201-4200-4199-4198-4197-4196-4195-4194-4193-4192-4191-4190-4189-4188-4187-4186-4185-4184-4183-4182-4181-4180-4179-4178-4177-4176-4175-4174-4173-4172-4171-4170-4169-4168-4167-4166-4165-4164-4163-4162-4161-4160-4159-4158-4157-4156-4155-4154-4153-4152-4151-4150-4149-4148-4147-4146-4145-4144-4143-4142-4141-4140-4139-4138-4137-4136-4135-4134-4133-4132-4131-4130-4129-4128-4127-4126-4125-4124-4123-4122-4121-4120-4119-4118-4117-4116-4115-4114-4113-4112-4111-4110-4109-4108-4107-4106-4105-4104-4103-4102-4101-4100-4099-4098-4097-4096-4095-4094-4093-4092-4091-4090-4089-4088-4087-4086-4085-4084-4083-4082-4081-4080-4079-4078-4077-4076-4075-4074-4073-4072-4071-4070-4069-4068-4067-4066-4065-4064-4063-4062-4061-4060-4059-4058-4057-4056-4055-4054-4053-4052-4051-4050-4049-4048-4047-4046-4045-4044-4043-4042-4041-4040-4039-4038-4037-4036-4035-4034-4033-4032-4031-4030-4029-4028-4027-4026-4025-4024-4023-4022-4021-4020-4019-4018-4017-4016-4015-4014-4013-4012-4011-4010-4009-4008-4007-4006-4005-4004-4003-4002-4001-4000-3999-3998-3997-3996-3995-3994-3993-3992-3991-3990-3989-3988-3987-3986-3985-3984-3983-3982-3981-3980-3979-3978-3977-3976-3975-3974-3973-3972-3971-3970-3969-3968-3967-3966-3965-3964-3963-3962-3961-3960-3959-3958-3957-3956-3955-3954-3953-3952-3951-3950-3949-3948-3947-3946-3945-3944-3943-3942-3941-3940-3939-3938-3937-3936-3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VESSEL:		Celebrity Solstice				Seattle				Ketchikan				Dep. Date & Time (MM/DD/YYYY HH:MM)				To be completed by Watch Officer	
		To be completed by Navigation Officer								To be completed by Master									
WP #	WP NAME	LAT/ION DD.MMmm E	L TRUE G	DIST. NML	EST. SPEED Knts	LEG TIME H:MM	ETA @ WPT CH	ZD	FK Interval and Method	Additional Instructions	Environmental Instructions	Comments							
21	Scott Islands	50.4420 N	21 341.9	359.5	17.5	9:02	22-AUG		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.15 XTE: 100 meters	Port Condition	Call Prince Rupert Traffic on VHF Ch 11 (Sector 1) Passing McInnes Island							
22	Port Condition	130.4550 W	21 341.9	359.5	17.5	9:02	22-AUG		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.35 XTE: 100 meters		Call Prince Rupert Traffic on VHF Ch 11 (Sector 1) Passing Bonilla Island							
23	NW of Buoy OEB	53.5940 N	22 347.9	39.4	17.5	2:15	11:14		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.41 XTE: 100 meters		Call Prince Rupert Traffic on VHF Ch 74 (Sector 2) Passing Seal Rocks							
24	Butterworth	54.1360 N	23 355.0	20.3	17.5	1:10	2:23		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.36 XTE: 100 meters - PI: 1.1 nm - WOP: 0.36		TOFINO-CANADIAN CG & JRCC COAST GUARD PHONE: +1 250 7267716							
25	Jacinto Point	54.2150 N	24 349.0	8.0	19.0	0:25	1:49		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.16 XTE: 100 meters		MMSL: 093160012 e-mail: mctspruceport@dfc-mpo.gc.ca							
26	Dixon Entrance	54.3000 N	25 321.0	10.9	21.5	0:31	2:19		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.57 XTE: 100 meters		VHF Ch: 16-16-70-74-83A-84 MF: 2182-2054 / HF: 4125							
27	Zayas Island	54.3850 N	26 000.0	8.5	21.5	0:24	2:43		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.1 XTE: 100 meters	Entering Alaskan Waters	Call Prince Rupert Traffic on VHF Ch 11 (Sector 1) Crossing International Boundary Line							
28	Entering Alaskan Waters	54.4911 N	27 024.8	11.7	21.5	0:33	3:16		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.1 XTE: 100 meters	Run WGO	Call Twin Island P/S on VHF Ch 16/12 One hour prior Arrival 2 hours prior arrival in US & Canadian ports switch HF to WGO							
29	East Island	54.5200 N	28 024.8	3.2	21.5	0:09	3:25		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.28 XTE: 100 meters		PRINCE RUPERT-CANADIAN CG & JRCC COAST GUARD PHONE: +1 250 6273091							
30	Windrow Point	55.0650 N	29 353.2	14.6	21.5	0:41	4:05		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.98 XTE: 100 meters		MMSL: 093160013 e-mail: mctspruceport@pac.dfo-mpo.gc.ca							
31	Twin Island P/S	55.0900 N	30 330.2	2.9	18.0	0:10	4:15		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.84 XTE: 100 meters		VHF Ch: 11-16-26-70-83A-84 MF: 2182-2054							
32	HOG Rocks	55.1150 N	31 311.1	3.8	17.5	0:13	4:28		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.74 XTE: 100 meters		HF: 4125							
33	Angle Point	55.1400 N	32 294.7	6.0	12.0	0:30	4:58		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 1.11 XTE: 100 meters									
34	Spire Island	55.1650 N	33 321.4	3.2	17.5	0:11	5:09		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.68 XTE: 100 meters	Stop Incinerators								
35	Mountain Point	55.1730 N	34 291.8	2.2	17.5	0:07	5:16		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.37 XTE: 100 meters									
36	Pottor Rock	55.1800 N	35 304.3	1.2	12.0	0:06	5:22		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.21 XTE: 100 meters									
37	R2	55.1850 N	36 325.6	0.6	12.0	0:03	5:26		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.11 XTE: 100 meters									
38	R3	55.1892 N	37 315.8	0.6	7.0	0:05	5:31		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.14 XTE: 100 meters									
39	Tongass Channel	55.1910 N	38 325.8	0.2	7.0	0:02	5:32		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.14 XTE: 100 meters									
40	Regulatory Buy	55.1956 N	39 307.4	0.4	7.0	0:04	5:36		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.09 XTE: 100 meters									
41	USCG Station	55.1987 N	40 315.8	0.7	7.0	0:06	5:42		R-V-G	Green Condition Rad: 4 nm - ROT: 57/min - WOP: 0.09 XTE: 100 meters									
41	USCG Station	131.3768 W	Total Voyage Dist = 468.9				00-16-46 = Total Voy. Time												

Final Remarks: Track 0041. Charts to be used: BA 50-47-46-4850-4947-4945-4944-4943-4942-4923-4928-3754 Charts corrected up to 33/2013***NOAA 17434-17428-17430 Charts corrected up to 32/2013***ENC updated up to 32/2013

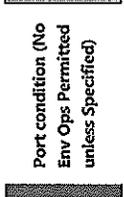




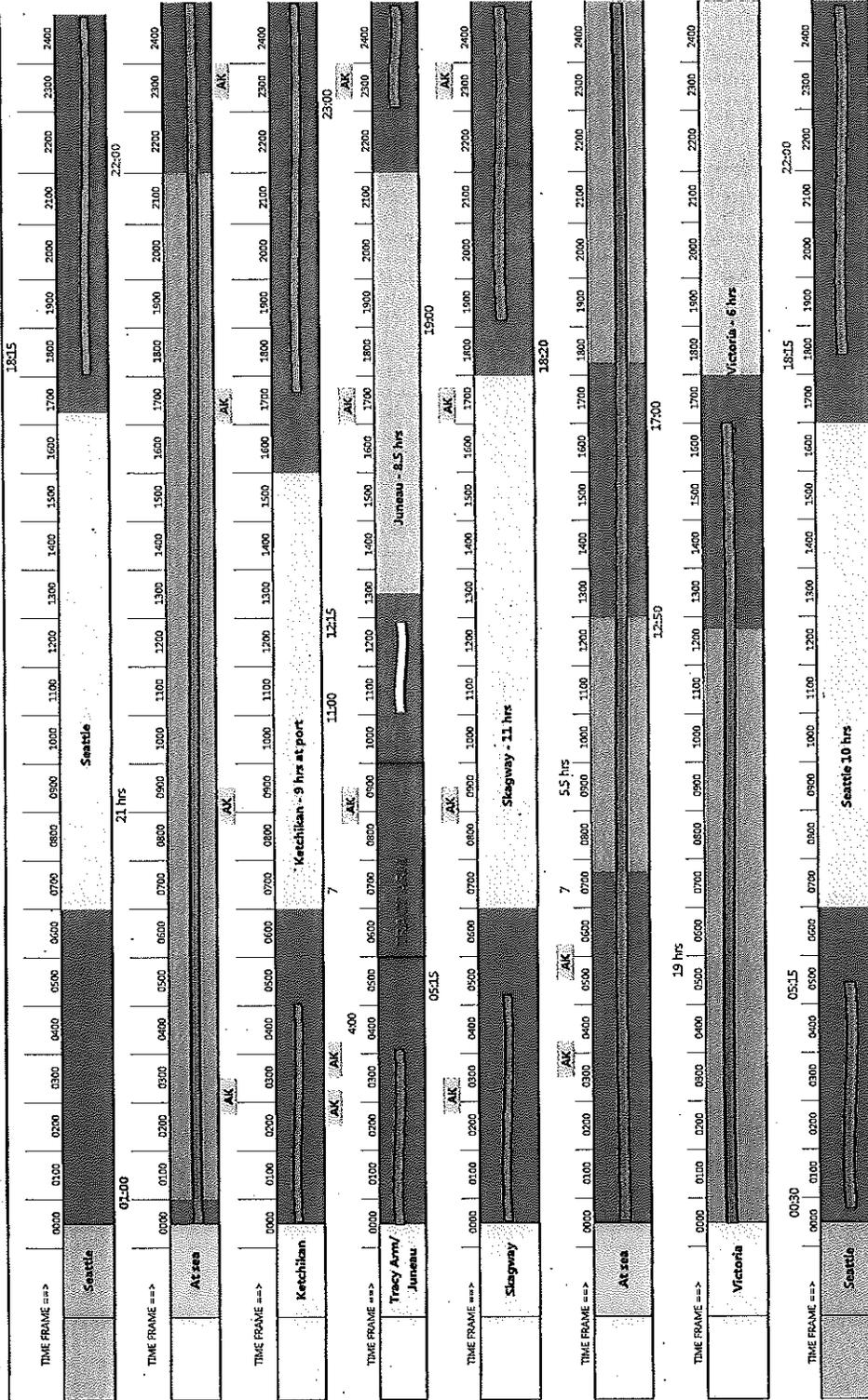
Celebrity SOLSTICE : Seattle to Seattle - 7 days Alaska cruise/ preliminary plan - rev 1

Alaska Waters

LEGEND====>

-  Port condition (No Env Ops Permitted unless Specified)
-  Sea Condition (All Env Ops Permitted)
-  Marine Ops Discharge Exemption (See Approval Form)
-  Incinerator Ops Permitted

This is only an Estimated Time Line All Port and Sea Conditions must be confirmed with the Bridge prior to starting any operation



Sea Condition total: est 45.5 hrs

NO DICHARGES IN ALASKA WATERS - ALEXANDER ARCHIPELAGO



Celebrity SOLSTICE : Seattle to Seattle - 7 days Alaska cruise/ preliminary plan - rev 1

Alaska Waters



Inherent Ops Permitted



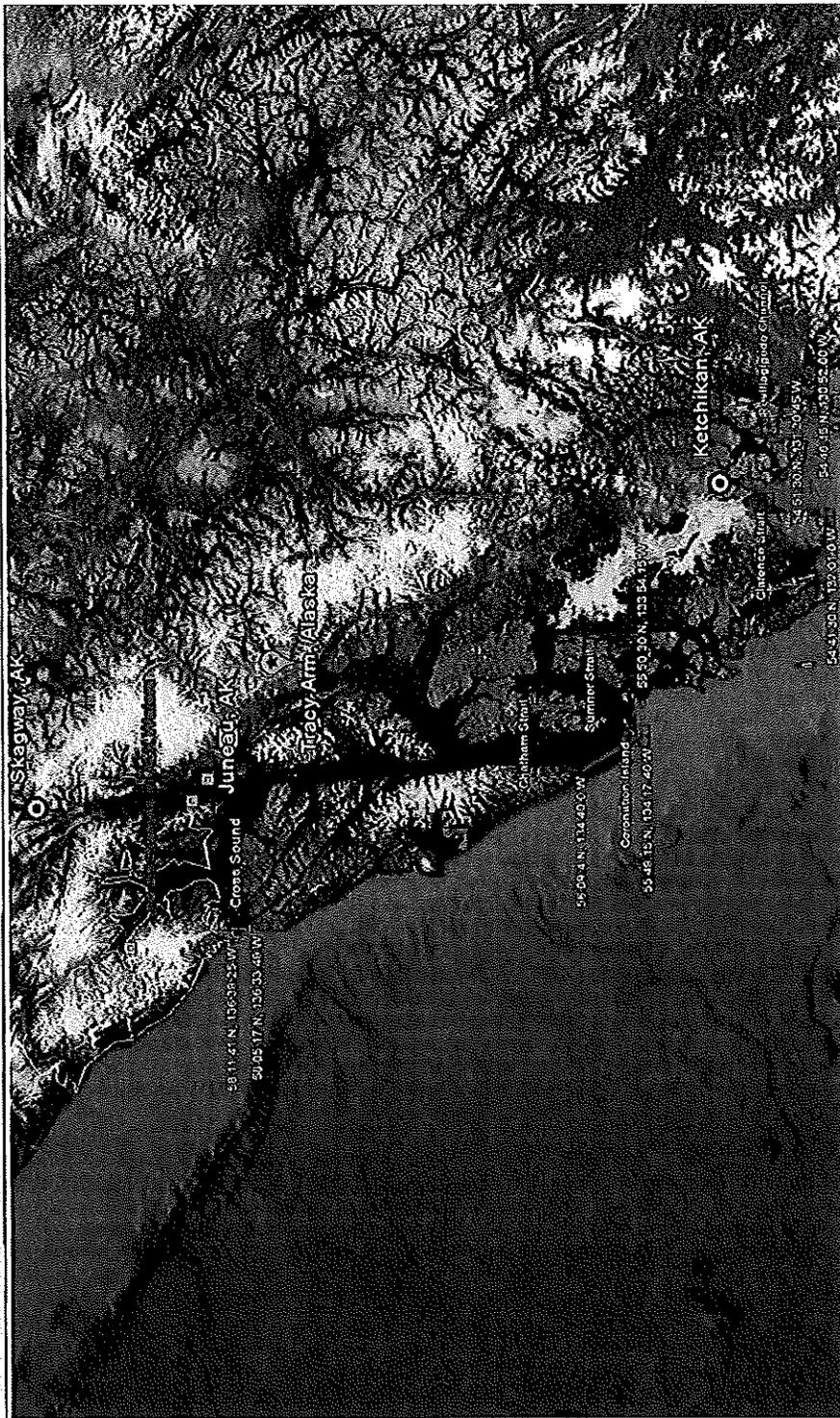
Marine Ops
Discharge
Exemption (See
Exemption
Approval Form)

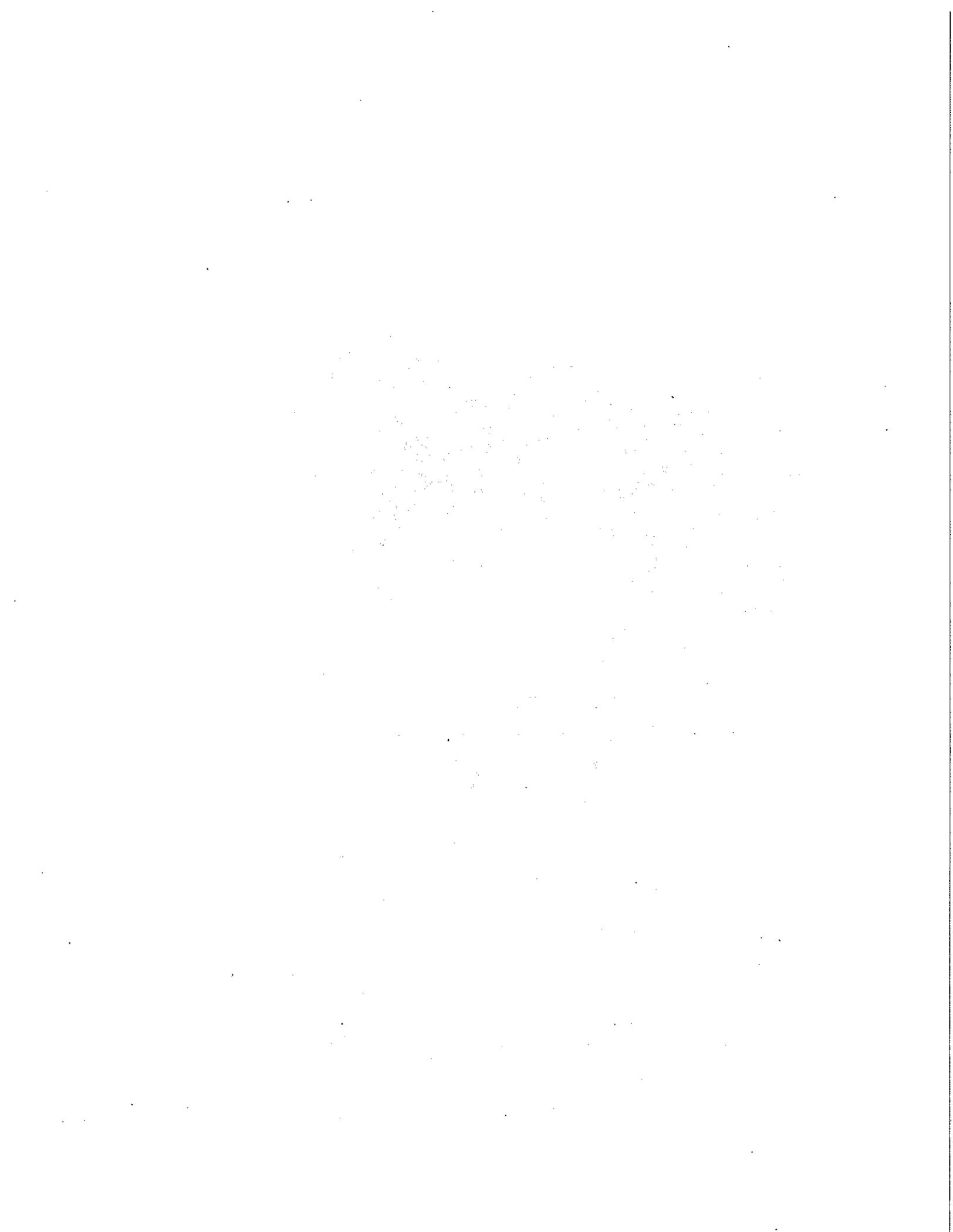
Sea Condition (All
Env Ops
Permitted)

Port condition (No
Env Ops Permitted
unless Specified)

This is only an Estimated Time Line All Port and Sea Conditions must be confirmed with the Bridge prior to starting any operation

LEGEND====>





Celebrity SOLSTICE : Seattle to Seattle - 7 days Alaska cruise/ preliminary plan - rev 1

Alaska Waters

LEGEND====>

Port condition (No Env Ops Permitted unless Specified)

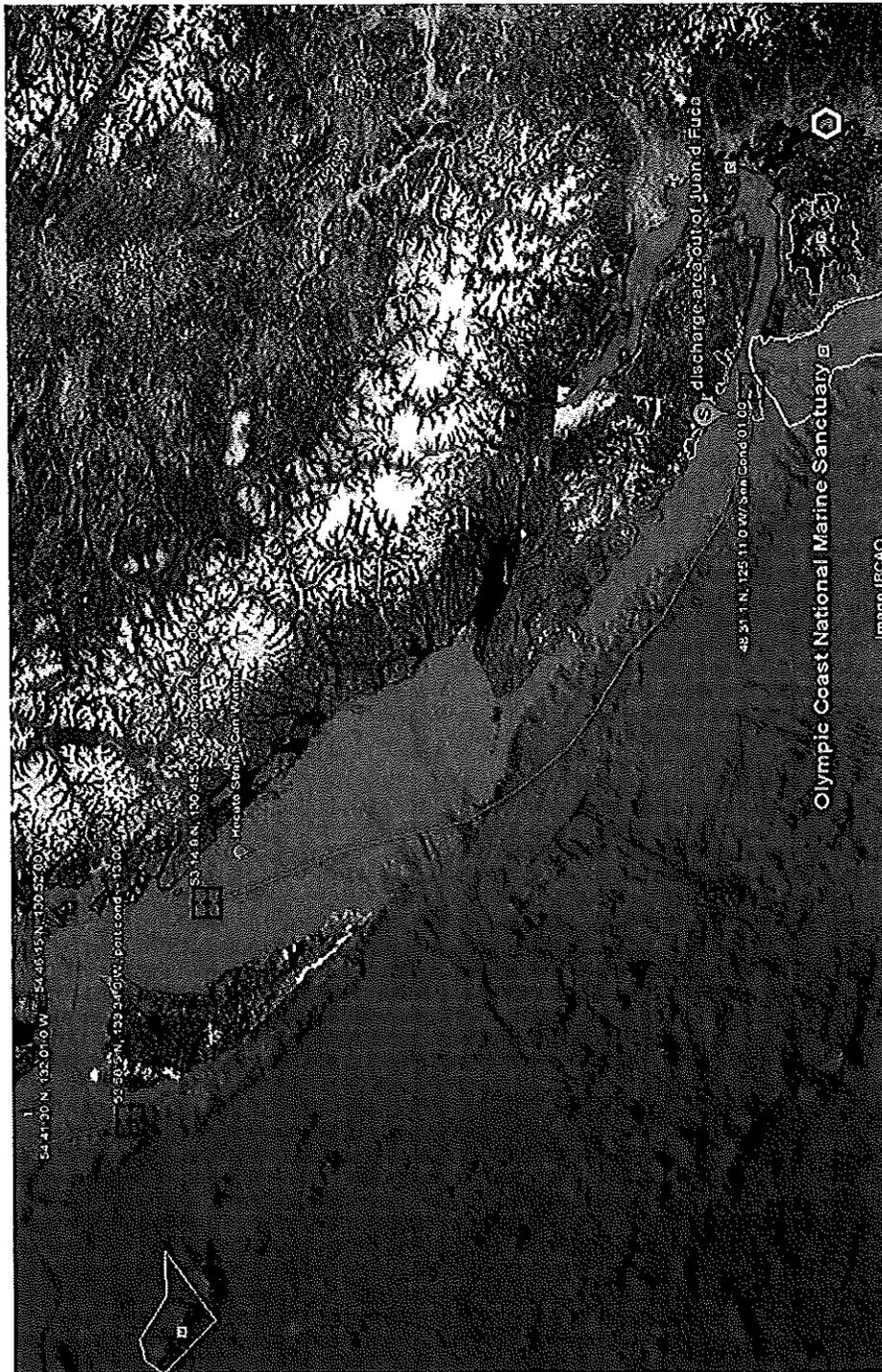
Sea Condition (All Env Ops Permitted)

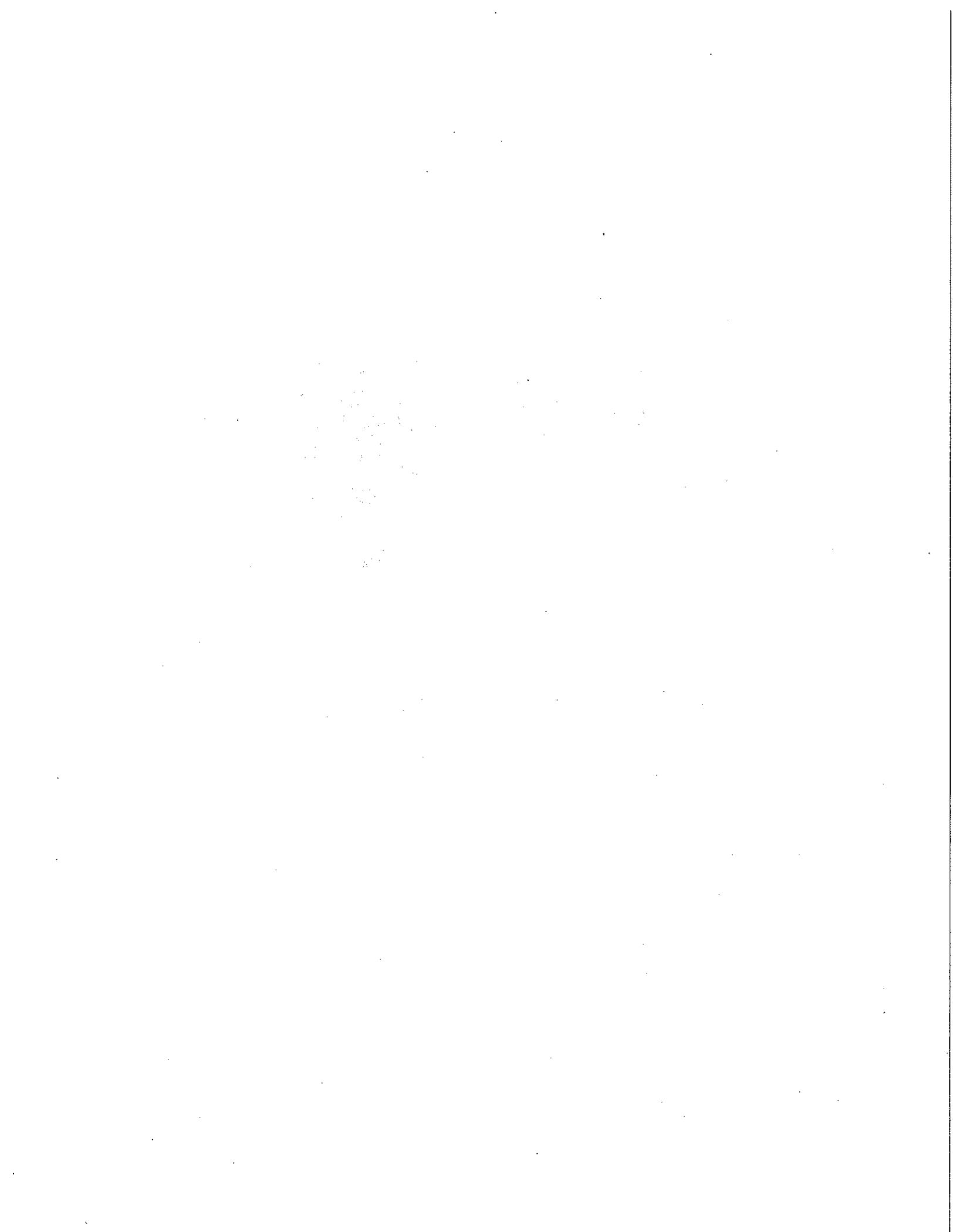
Marine Ops Discharge Exemption Approval Form

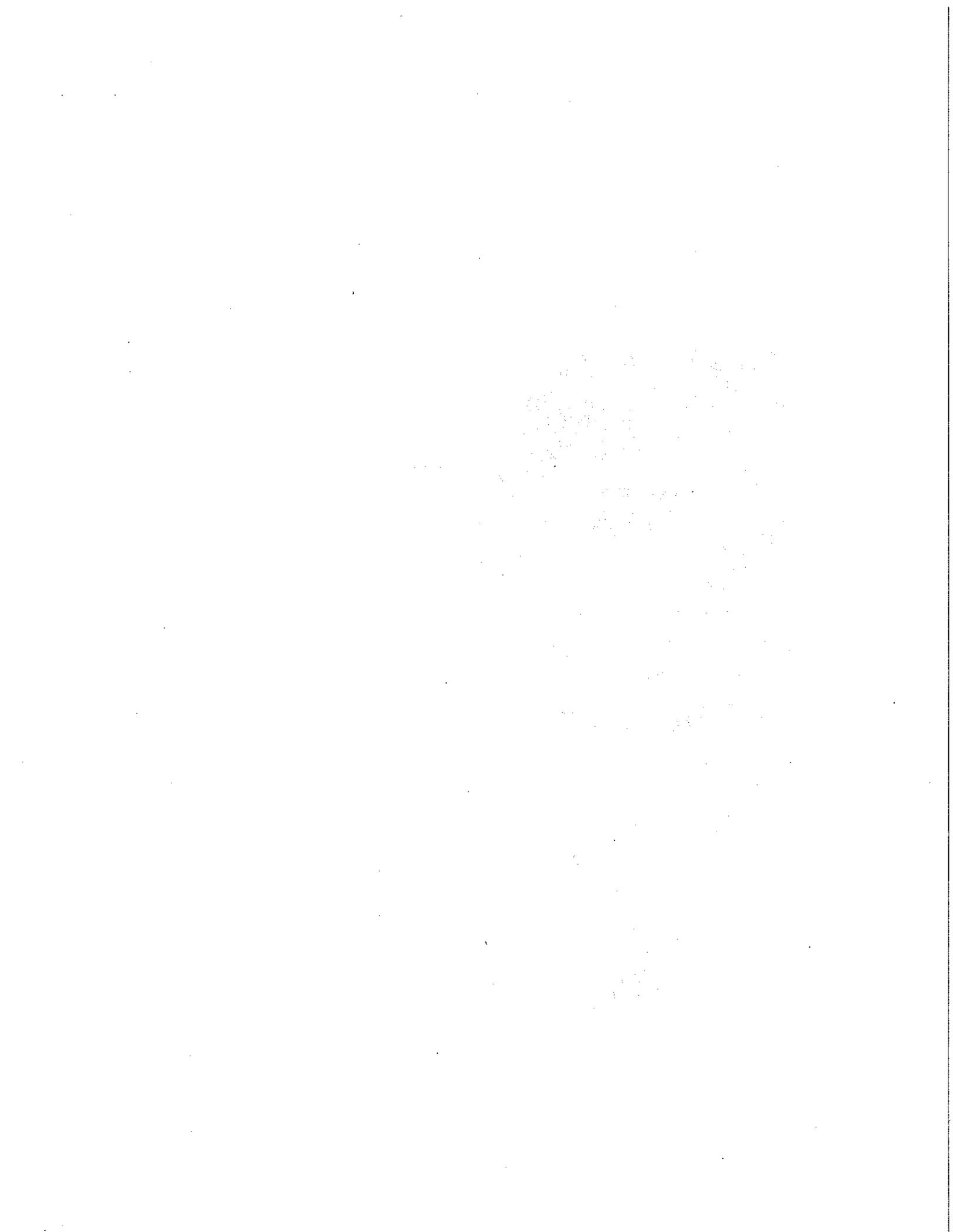
Incinerator Ops Permitted

This is only an Estimated Time Line All Port and Sea Conditions must be confirmed with the Bridge prior to starting any operation

Sea Condition - Seattle to Ketchikan







Celebrity SOLSTICE : Seattle to Seattle - 7 days Alaska cruise/ preliminary plan - rev 1

Alaska Waters



Port condition (No Env Ops Permitted unless Specified)

Sea Condition (All Env Ops Permitted)

Marine Ops Discharge Exemption (See Exemption Approval Form)

Indicator Ops Permitted



This is only an Estimated Time Line All Port and Sea Conditions must be confirmed with the Bridge prior to starting any operation

Sea Conditions - Skagway to Victoria

