



CARNIVAL
CORPORATION & PLC

Cruise Ship Pollution Prevention

What Works?

...and What Doesn't?

**American Association
of Port Authorities**

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Scope of the Problem

- Smaller scale potential for serious oil pollution than some other maritime segments (i.e. tankers)
- Small spills or leaks
 - Fueling
 - Sludge removal
 - Equipment leaks
 - Propellers, azipods,
 - Stern tubes
 - Thrusters and stabilizers
 - Hydraulic systems
- Additional concerns with sewage, gray water, air emissions, plastics

Recent History of Prosecutions

- Princess
- Royal Caribbean
- Holland America
- Carnival Corporation
- Norwegian Cruise Lines

Regal Princess

- 1993
- Passenger videotaped plastics disposal overboard
- Criminal plea
- \$500K fine
- First of a series of criminal prosecutions in cruise industry

Royal Caribbean

- First of the “OWS” prosecutions
- 4 year investigation commenced in 1994
 - Oil slick trailing ship sighted by USCG
 - Ship boarded/inspected
 - Case turned over to DOJ
- Guilty plea in 1998
 - Conspiracy, false statements, APPS violations, obstruction of justice
 - \$9 million fine, probation
- Additional plea in 1999
 - Dumping waste oil & contaminated gray water, lying
 - Additional \$18 million fine

Holland America

- 1998 guilty plea in Alaska
 - APPS violations – discharging oily bilge
 - \$2 million criminal fines
 - Asst. Engineer awarded \$500K reward
 - Two ship's officers and one corporate manager pled guilty to negligently discharging oily bilge water
- First prosecution of shore-based employee for shipboard violation

Carnival Corporation

- 2002 guilty plea
 - Six counts of falsifying records (ORBs)
 - All based on Carnival Cruise Line ships
 - Carnival Corporation, not CCL, prosecuted
- Plea agreement
 - \$18 million
 - 5 year probation
 - Environmental Compliance Plan
 - Violation by any operating line is a violation of CarnCorp probation

Norwegian Cruise Line

- July 2002
 - Guilty plea to falsifying records
 - New owners cooperated with DOJ
 - \$1 million fine, 3 year probation
- December 2003
 - 3 engineers indicted for falsifying records
 - Whistleblower awarded \$250K

Carnival Corporation Environmental Compliance Plan (ECP)

- Organizational changes
- Extensive training
- Extensive auditing
 - Internal
 - External
- Reporting

Organization

- Corporate EC Department
- EC Department at each operating line
- Any new acquisitions included (i.e. P&O/Princess 2003 merger)
- Environmental Officers on each ship

Training

- Extensive multi-tier approach
 - Tier 1 covers all shipboard/some shoreside
 - Tier 2: Those who touch wastes
 - Tier 3: Those who manage wastes
 - Tier 4: Environmental Officers
- US Attorney/Probation Officer perception
 - Very little environmental training
 - Most difficult part of ECP
 - They were right

Auditing

- External audit program conducted by independent consultant
- Corporate audits
- Operating line audits- each ship annually
- Monthly self-assessment by EO
- Unannounced visits by probation officers

Reporting

- Formal quarterly reports to “Interested Parties” and corporate Board of Directors Audit Committee
 - Audit results
 - Pollution incidents
 - Training progress
- Real-time reporting/communication to probation officer

Incident Reporting

- What gets reported?
 - Everything – when in doubt, report
 - Even the slightest pollution
- Promotes attitude changes
 - What happens on the ship stays on the ship –NO!
 - Transparency
 - Don't shoot the messenger

Reported Incidents

System	# of Incidents
Oil/Bilge/Sludge	64
Hydraulics	101
Wastewater	59
Other	75
Total	300

Incidents by Root Cause

Incident Cause	# of Incidents
Equipment failure	147
Personnel error	105
Design/procedure	40
Outside influence	2
Intentional	6
Total	300

Reported Incidents - Examples

- “A few drops of oil fell into the water...”
- “Several paint drops fell into the water...”
- “A mechanical failure of a cooling tube allowed 23 liters of oil to leak into the water...”
- “24 liters of oil leaked from a bow thruster...”
- “Vessel exceeded opacity limits for 22 minutes...”
- “Approx 2.5 tons of processed blackwater was discharged within 4 NM of land...”
- “Approx 7 cubic meters of category 3 garbage were discharged in a MARPOL designated Special Area...”
- “Two OCM systems were tampered with allowing unsampled bilge water to be discharged overboard...”

Culture Change

- What does culture change mean?
- What drives culture change?
 - Fear?
 - Transparency
- Senior officials ashore: “the message”
- Ship’s masters
- All employees
 - Interviews during audits
 - Interviews by Probation Officer
 - Self-reported incidents
 - Occasional hotline complaints by employees

Equipment

- OWS – technology continues to improve
 - Centrifugal
 - Flocculent
- OCM
 - Optical technology: false positives (cloudy water)
 - Memory will soon be required
- Waste water purification
 - Type II MSD
 - Membrane bioreactors
 - New technology

The White Box

An Example of Helpful Equipment

- What does it prevent?
 - Mistakes
 - An extra OCM / recycle valve
 - Prevention of inadvertent technical water flow
 - Tampering
 - Not advertised as tamper-proof
 - Controls key components in locked cage
- Manufactured by Marinfloc
- Marketed by Total Marine Solutions (TMS)
- Installed on all CarnCorp ships by Apr 2005

White Box

Consists of:

- Regulating Valve
- Oil Content Meter
- Flow Switch
- Solenoid Valve
- Three Way Valve
- Flow Meter
- Control Box
- Recorder (ECR)

Purpose:

To prevent accidental discharge of treated oily water >15ppm.

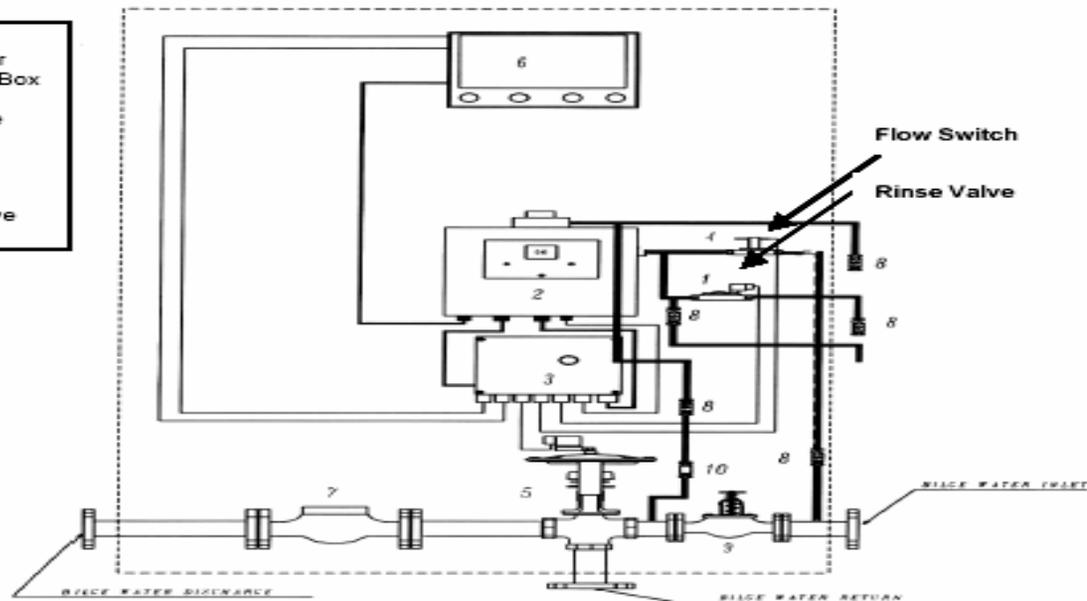
NOT TAMPERPROOF

White Box Diagram

WHITE BOX

Fault Safe System for Overboard Pumping of Water

- 1 Rinse Valve
- 2 Oil Content Meter
- 3 Flow Switch Ctrl Box
- 4 Flow Detector
- 5 Three Way Valve
- 6 Recorder
- 7 Flow Meter
- 8 Ball Valve
- 9 Reducing Valve
- 10 Non-Return Valve



The recorder can be located either in the ECR or in the white box.



What's Next for Carnival Corporation

- New Technology Equipment
 - Advanced Wastewater Purification
 - Plasma Arc Incinerator
 - Water-cooled Stern Tube Bearings
- Continued participation in venues like this
- Participation with environmental groups
- ISO 14001 certification
- Post probation management

What Doesn't Work?

- Poorly maintained, obsolete equipment
- Lack of detailed training on equipment operation/maintenance and procedures
- Lip service or no participation from management
- Secrecy
 - “What happens on the ship stays on the ship”
 - Mixed signals or behind the scene signals from management
 - Incorrect perceptions by shipboard personnel of expected environmental performance

What Works?

- Good equipment and technology
- Training and education
 - Increased awareness at all levels
 - Gradual change in culture
- Top level commitment
 - Participation in training
 - Driving changes in corporate culture
- **TRANSPARENCY**
 - Report everything, even most minor incidents
 - Eliminates fear
 - Results in true culture change

A blue decorative graphic consisting of a vertical bar on the left and a horizontal bar at the top, both with rounded ends.

Questions ??