



**CARNIVAL**  
CORPORATION & PLC

# **Cruise Ship Pollution Prevention**

**What Works?**

**...and What Doesn't?**

**American Association  
of Port Authorities**

**17 February 2005**

# 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

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

# Regal Princess

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- 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)

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- 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
<b>Total</b>	<b>300</b>

# Incidents by Root Cause

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



# 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.

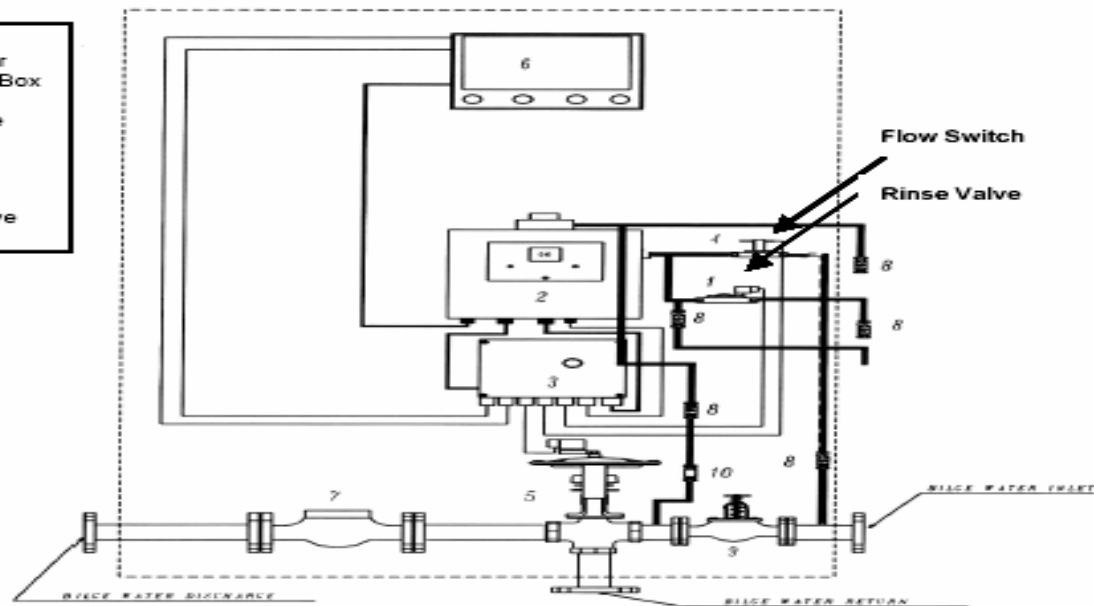
NOT TAMPERPROOF

# 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



Questions ??