



CARNIVAL  
CORPORATION & PLC

# Cruise Ship Sustainability

AAPA Convention  
Norfolk, VA  
4 October 2007

# Purpose

- Describe who we are
- Discuss our evolutions while in port
- Discuss what can go wrong
- Discuss sustainability initiatives
- Solicit your ideas for how we can work together better
- Answer any questions you may have



CARNIVAL  
CORPORATION & PLC



 **Carnival.**  
The Fun Ships.

  
**Costa**

  
THE YACHTS OF SEABOURN™  
INTIMATE. LUXURY.



**GUNARD** 

  
PRINCESS CRUISES  
*escape completely™*

 **Holland America Line**  
*A Signature of Excellence*

**P&O** CRUISES  
AUSTRALIA

  
**P&O CRUISES**

**ocean**  
VILLAGE

# Carnival Corporation & plc

- Currently 82 ships in operation
  - Ten brands
  - Operate from more than 20 ports world wide
  - Call at more than 400 ports worldwide
- More than 7 million guests annually (project over 10 million by 2011)

# Company History

- A “young” company with some “old” pieces
  - 1972: Carnival Cruise Lines formed with one ship
  - 1987: Initial public offering of stock
  - 1989: Holland America Line acquired
  - 1992: Seabourn Cruise Line acquired
  - 1997: Costa Cruises acquired
  - 1998: Cunard Line acquired
  - 2003: Merged with P&O Princess Cruises plc
    - Princess Cruises
    - P&O Cruises
    - AIDA Cruises
    - Ocean Village
- Aggressive new construction program

# Sustainability Issues

- Logistics
  - Berthing arrangements
  - Port access for service contractors
  - Longshoreman activity
- Safety
  - Self-sufficient for routine activities
  - Emergency response from port/local agencies
- Environmental protection
  - Spill prevention
  - Discharges
  - Air emissions
- Security
  - Most reliance on port authorities

# Turn Around Port Activities

- Guest embarkation
- Supply onload
- Waste offload
- Security provision



# Port Visit Security

- Port assessments
  - Conducted prior to first visit
  - Repeated periodically
- Assessment standard issued to:
  - Ensure common approach across brands
  - Allow sharing and common acceptance



# Port Assessment Elements

- General information & contact details
  - Status of ISPS compliance
  - Identification of responsibilities
- Availability & capability of shoreside and waterside patrols
- Ship planned berth location
- Communication procedures
- Local security concerns and risks

# Port Assessment Elements:

## *Perimeter Security*

- Assess the port's "outer" perimeter
- Check contiguous fence line with breaks manned by security personnel
- Look for areas vulnerable to breach



# Port Assessment Elements:

## *Security Notifications*

- Look for signs that notify approaching persons of security zone
- Check for signage at all entry points and strategic locations



# Port Assessment Elements:

## *Pier Side Security Zone*

- Materials for temporary security zone near vessel
- Marshalling area remote from ship to screen provisions
- Contiguous “inner” perimeter manned at all breaks



# Port Assessment Elements: *Standoff Distance*



# Port Assessment Elements:

## *Access Control*

- Identification confirmation
- X-ray
- Archway metal detector
- Secondary screening
- Vehicle screening
- Explosive detection
- Cameras and alarms



# General Port Call Security Considerations during Visits

- Security arrangements
  - Designed to present “hard target”
  - Addresses vulnerabilities identified in port assessment
  - Addresses known threats
- Communications
  - PFSO available to meet with ship
  - Declaration of Security completed if required
  - Frequent, open, easy communication (e.g. radio exchange)
- Joint drills and/or exercises when appropriate
- Incident response
  - First response by ship/shore personnel
  - Proximity and responsiveness of local government security forces and law enforcement

# Despite Our Best Efforts... Things Do Go Wrong

- Most “big” things go wrong at sea
  - But require rapid return to port
  - Often require highest level of support
- Most “little” things go wrong in port



# A Few Recent Headlines

**Sea Sick -- Infection Outbreaks Challenge the Cruise Ship Experience**

**Cruise Ship Can't Shake Flu Bug**  
Virus Outbreak Reported for Second Straight Voyage

***Cruise Liner Dumps Oil in Paradise***

**Fire Breaks Out aboard Cruise Ship;  
One Dead**

**14 Seriously Hurt When Cruise Ship  
Rolls Off Port Canaveral**

***Pirates Attack Cruise Ship***

# Seabourn Spirit Pirate Attack



5 Nov 2005  
Near Somalia



# Star Princess Balcony Fire

23 Mar 2006

Near Jamaica



# Most "Little" Things Don't Make the Headlines (Fortunately!!)

- Accidents handling supplies



- Small spills



- Security issues



# Sustainability Initiatives

- Packaging
- Recycling
- Waste Treatment
  - Advanced Wastewater Treatment
  - Plasma Arc Incinerator
- Air Emissions Reductions
  - Gas Turbine Engines
  - Biofuels
  - Exhaust Scrubber
  - Shore Power

# Recycling



- Solid waste
  - Paper
  - Metals
  - Glass
  
- Industrial waste
  - Batteries
  - Fluorescent bulbs
  - Cooking oil



# Air Emissions

( Obviously not a Carnival ship)



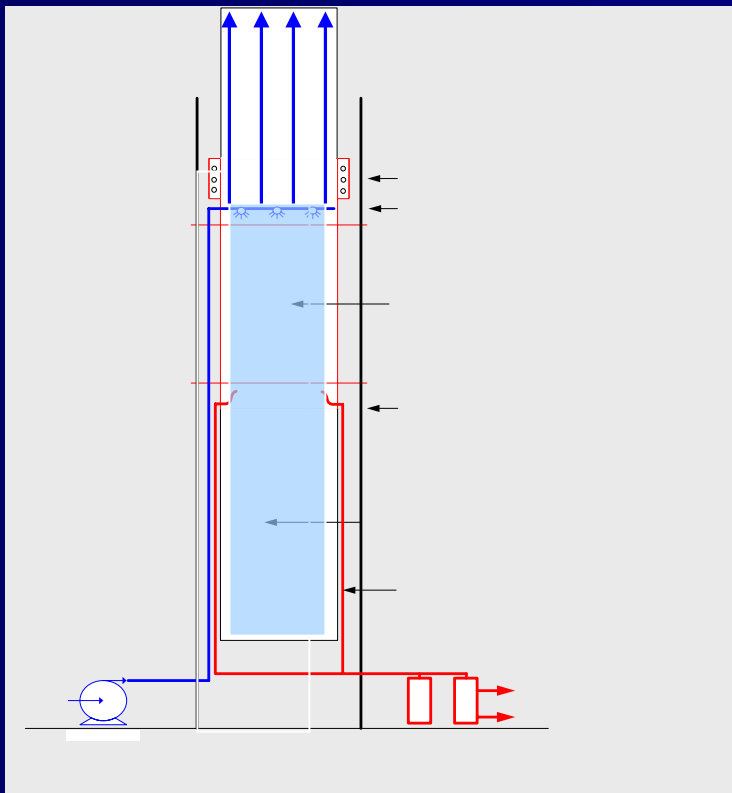
## COMPONENTS

- Particulate
- Sox
- NOx
- CO<sub>2</sub>

# Seawater Scrubber

## *Applying Shore Technologies at Sea*

Scrubbed air exhaust



- Exhaust routed through seawater bath.
- “Scrubbing” benefits:
  - Almost complete elimination of SOx emissions
  - Substantially reduces particulate matter
  - Decreases NOx emissions
- Benefits at sea and in port.



# Shore Power in Juneau, AK



# Suggestions?

What should we do differently?

What can we do better?

# Questions?