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

- Currently 82 ships in operation
  - Ten brands
  - Operate from more than 20 ports worldwide
  - 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
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

COMPONENTS

- Particulate
- Sox
- NOx
- CO₂

(Obviously not a Carnival ship)
Seawater Scrubber
Applying Shore Technologies at Sea

- 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?