



Alaska Department of Transportation & Public Facilities Day Boat ACF

House Transportation Committee

February 4, 2014



Day Boat ACF

- Vessel Mission Requirements
 - Payload – 53 vehicles and 300 passengers
 - Speed – 15.5 knot schedule speed
 - 16 knot service speed @ 85% Maximum Power
 - Single ended, with drive through loading/unloading (Bow and Stern Doors)
 - Rapid load/unload of passengers/vehicles
 - Highly maneuverable



Day Boat ACF – Design Study

- Proposed Routes
 - 1st Priority – Lynn Canal
 - 2nd Priority – Short Existing AMHS Routes
 - 3rd Priority – Juneau Access Routes, if required
- Operational Constraints
 - Terminal configuration
 - Vehicle loading
 - Walk on passenger loading
 - Overnight mooring



Day Boat ACF

- Major Design Decisions
 - Closed Aft Deck vs Open
 - Pros:
 - ◆ Increased weather protection, potential lower maintenance
 - Cons
 - ◆ Slightly increased cost – materials, ventilation
- Conclusion
 - Car deck will be completely enclosed



Day Boat ACF – Design Study

- Major Design Decisions
 - Bow Loading, Side Opening Doors





GRAND MANAN ADVENTURE













Day Boat ACF

- Major Design Decisions
 - Seakeeping considerations
 - Length greater than 235 Ft LECONTE
 - Eliminate forward guard sponsons
 - Optimize bow shape – reduce spray
 - Shelter important equipment from ice accumulation
 - Current Concept Design is 280 Ft length overall



Day Boat ACF

- Major Design Decisions
 - Seakeeping analysis
 - Wind, Wave & Seakeeping Studies (Glosten)
 - ◆ Used historical wind speeds, directions & wave heights
 - ◆ Used series of hulls – LECONTE to TAKU size
 - ◆ Calculated Motion Sickness Indices (MSI) using wave data



Day Boat ACF – Design Development

Model Testing

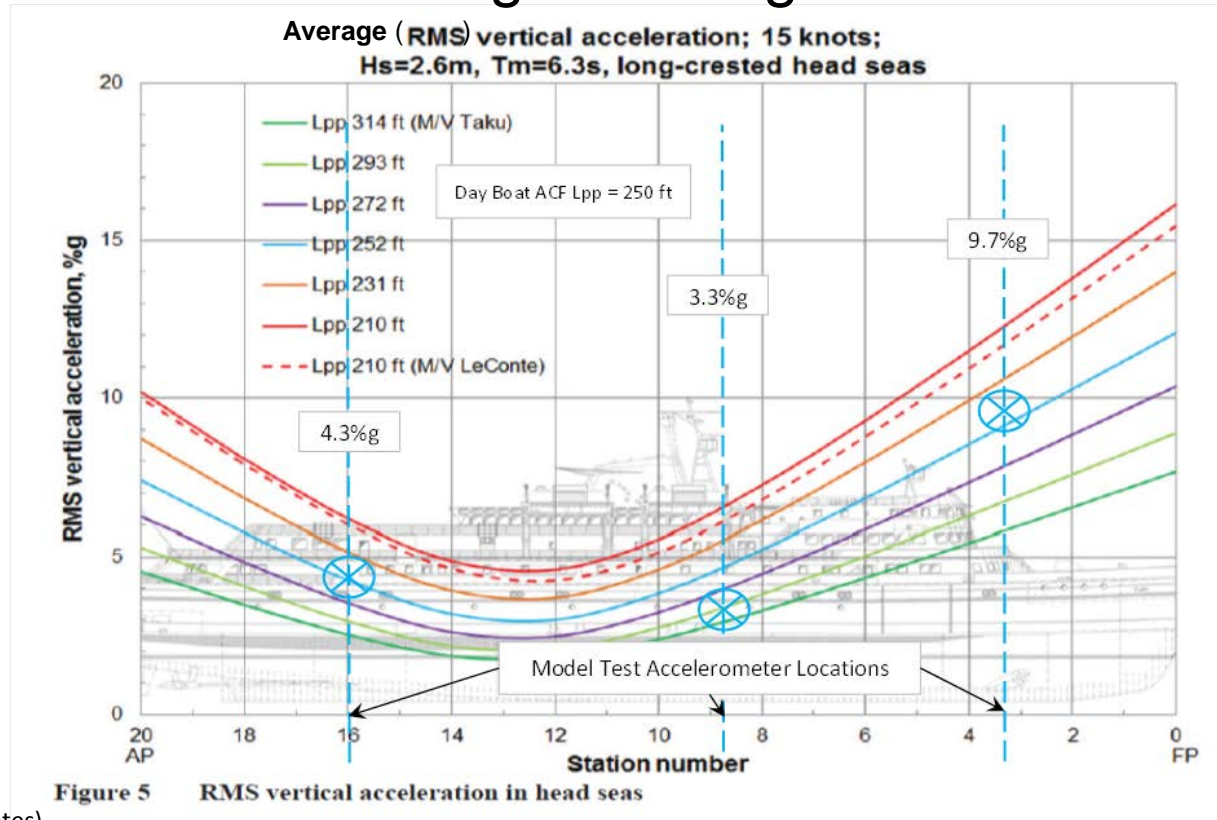
- Model Test Program
 - Hull Optimization
 - Model Construction
 - Bare Hull Resistance
 - Appended Resistance
 - Seakeeping
 - Maneuvering
- Conducted October 2013 at Force Technology in Lyngby, Denmark





Day Boat ACF – Design Development

MSI vs. Vessel Length & Longitudinal location



(courtesy: The Glosten Associates)



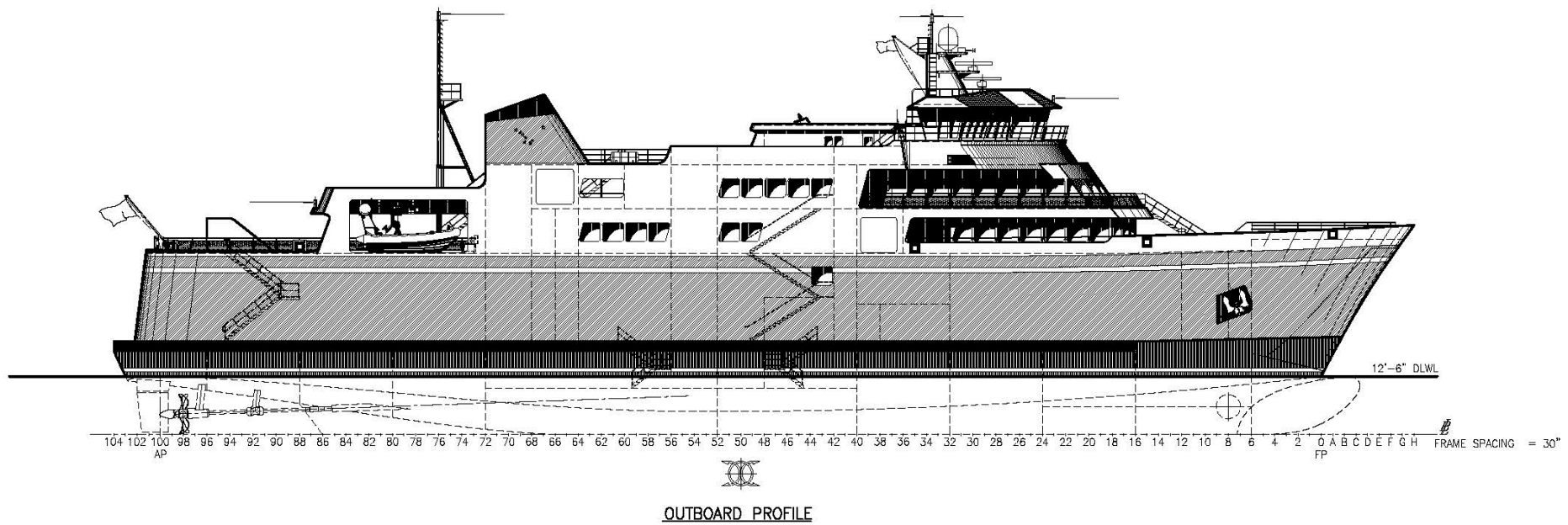
Day Boat ACF – Design Development

Principal Design Element	Day Boat ACF	M/V Leconte
Length Overall	280'	235'
Beam Over Guards	67'	57'
Draft	12' – 6"	13' – 11"
Passenger Capacity	300 (326 seats)	247 (230 seats)
Vehicle Capacity	53 ASV	34 ASV
Propulsion Horsepower	6,000	4,300
Speed	16.0 Kts	14.5 Kts

Note: Tustumena overall length is 296'

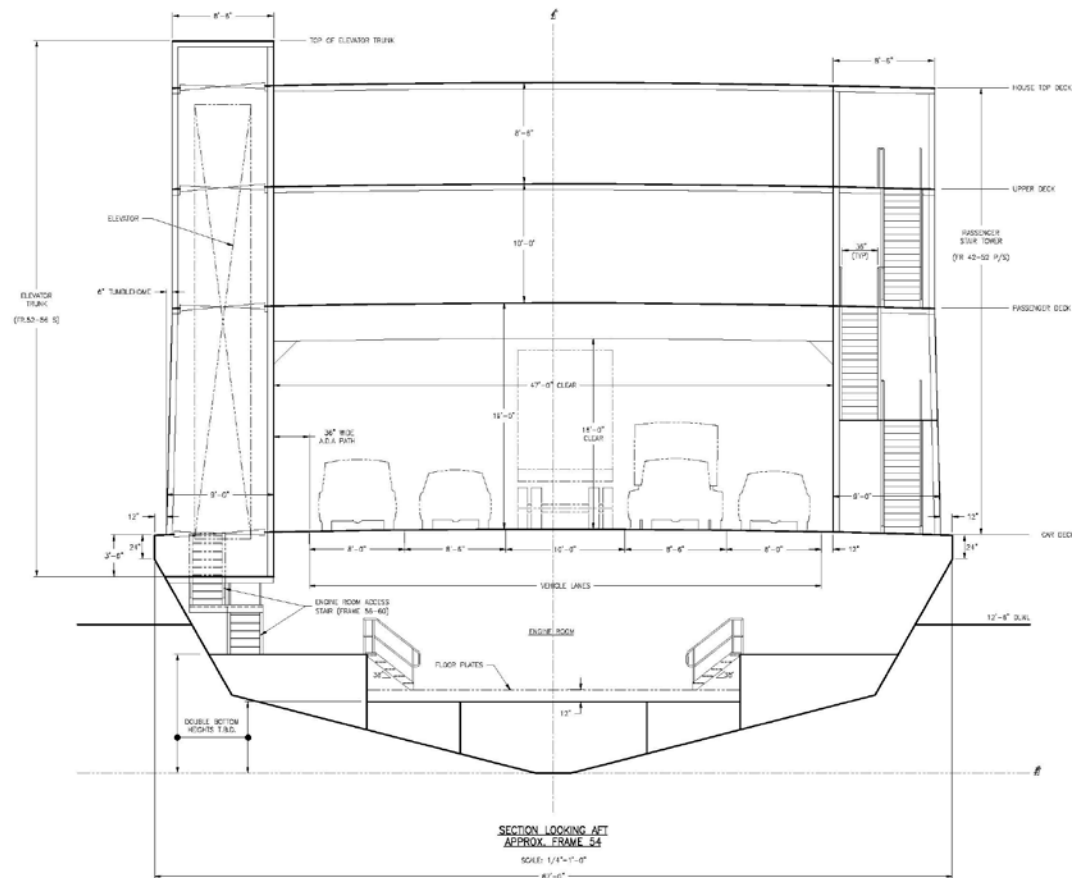


Day Boat ACF





Day Boat ACF





DECK PLAN OF THE M/V ZEPHYRUS - PASSENGER/FOCUS DECK

Key Features and Rooms:

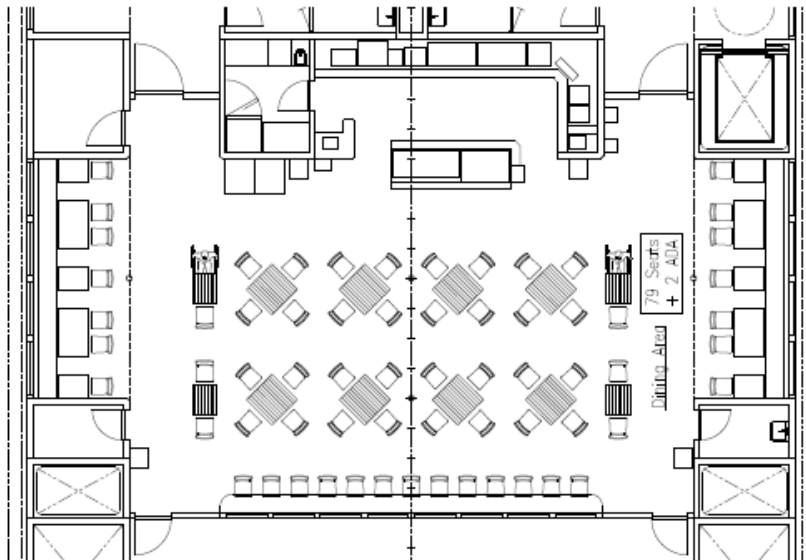
- Dining Area:** 1600 SQ. FT. 66 SEATS
- Family Lobby:** 910 SQ. FT. 24 SEATS
- Children's Play Area:** 910 SQ. FT. 24 SEATS
- Library/Quiet Room:** 810 SQ. FT. 46 SEATS
- Family Washroom**
- 1st Aid Room**
- Crew Stair Tower**
- Rescue Boat (P/S)**
- Solarium**
- Mooring Capstan**
- Mooring Line LKR (P/S)**
- Deck LKR**
- Engine Room Air Intake Trunk**
- MVZ BHD**
- Marine Evacuation Slide w/ 100 PERSON RAFT (P/S)**
- Family/Children's Play Room**
- Crew Stair to Car Deck**
- Closed St. Steel Panama Chocks - TIP 11 PLACES**
- Line of Upper DK (OVER)**
- Passenger/Foe'sle Deck Area:** 142 INTERIOR SEATS, 60 EXTERIOR SEATS
- Line of Mooring Line LKR (P/S)**
- Anchor/Mooring Capstan (P/S)**
- Family/Children's Play Room**
- Crew Stair to Car Deck**
- Closed St. Steel Panama Chocks - TIP 11 PLACES**
- Line of Upper DK (OVER)**
- Passenger/Foe'sle Deck Area:** 142 INTERIOR SEATS, 60 EXTERIOR SEATS

Other labeled areas include: DINING AREA, MEN, WOMEN, FOOD LKR, PASSENGER STAIR TOWER, FAMILY WASHRM, LOBBY, CHILDRENS PLAY AREA, 1ST AID ROOM, CREW STAIR, MOORING LINE LKR (P/S), CREW STAIR TO CAR DECK, CLOSED ST. STEEL PANAMA CHOCKS - TIP 11 PLACES, LINE OF UPPER DK (OVER), PASSENGER/FOE'SLE DECK AREA, 142 INTERIOR SEATS, 60 EXTERIOR SEATS.

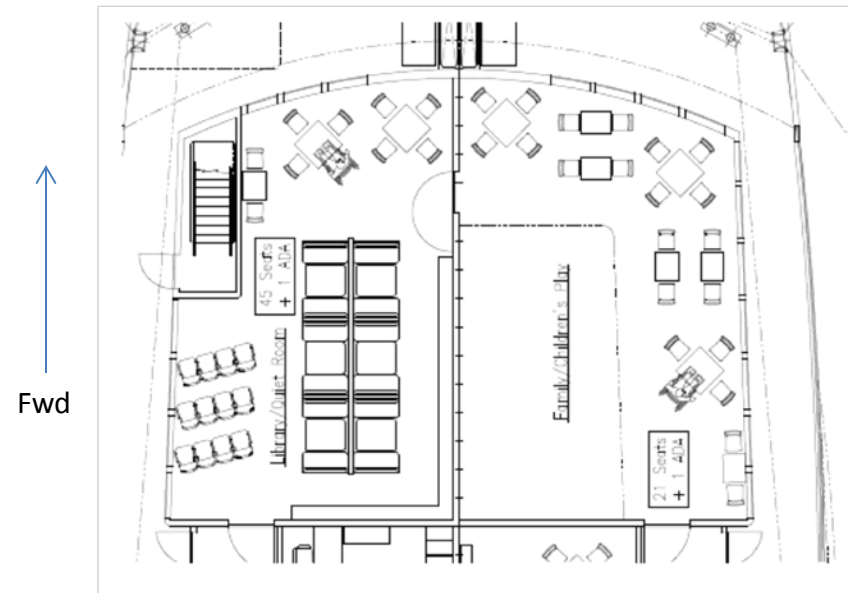


Day Boat ACF

- Proposed Space Arrangements
 - Passenger Deck



Food Service and Dining

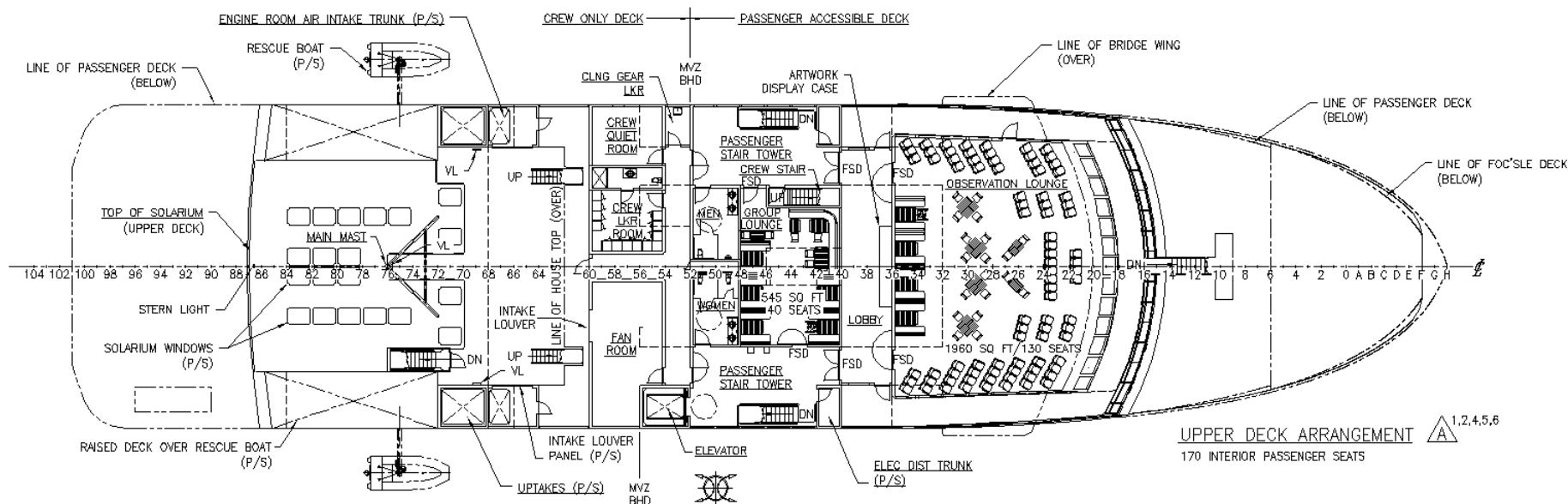


Library and Family Area



Day Boat ACF – Design Development

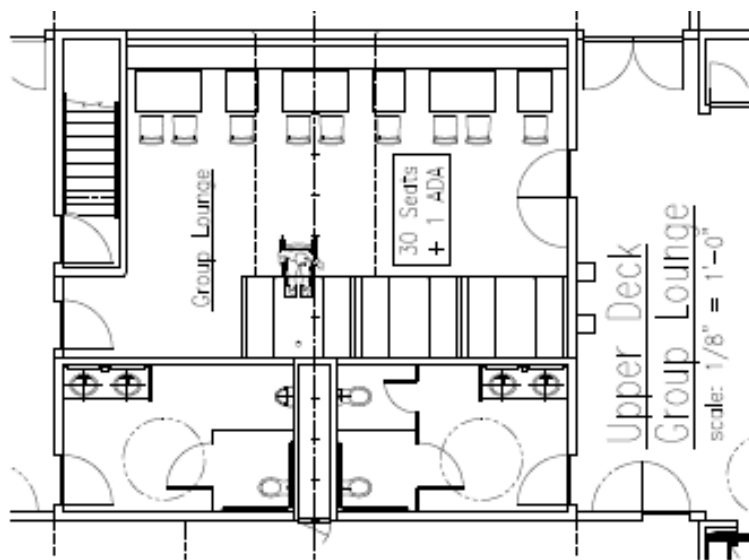
- Upper Deck Arrangement



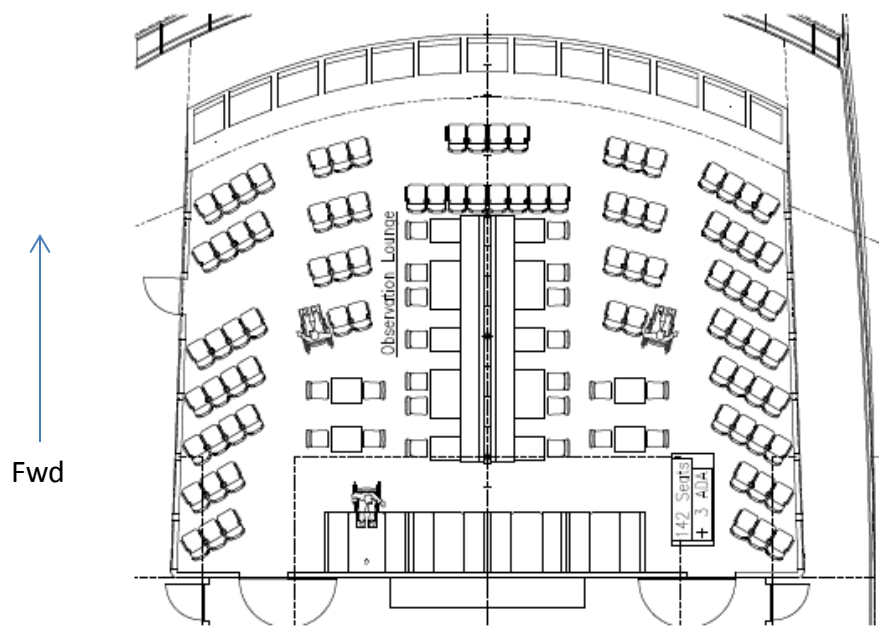


Day Boat ACF

- Proposed Space Arrangements
 - Upper Deck



Group Lounge



Forward Observation Lounge



Day Boat ACF

- Remaining Schedule
 - Final Contract Design – February 2014
 - Final Estimates: Vigor & Elliott Bay– March 2014
 - Negotiate Guaranteed Maximum Price or Advertise – April 2014
 - Award Shipyard Contract – June 2014
 - Delivery of Vessels:
 - 1st Vessel Target Date Mid 2016
 - 2nd Vessel Target Date May 2017