COUGAR

A VIH Aviation Group Company

Long Range Offshore Helicopter Passenger and SAR Operations

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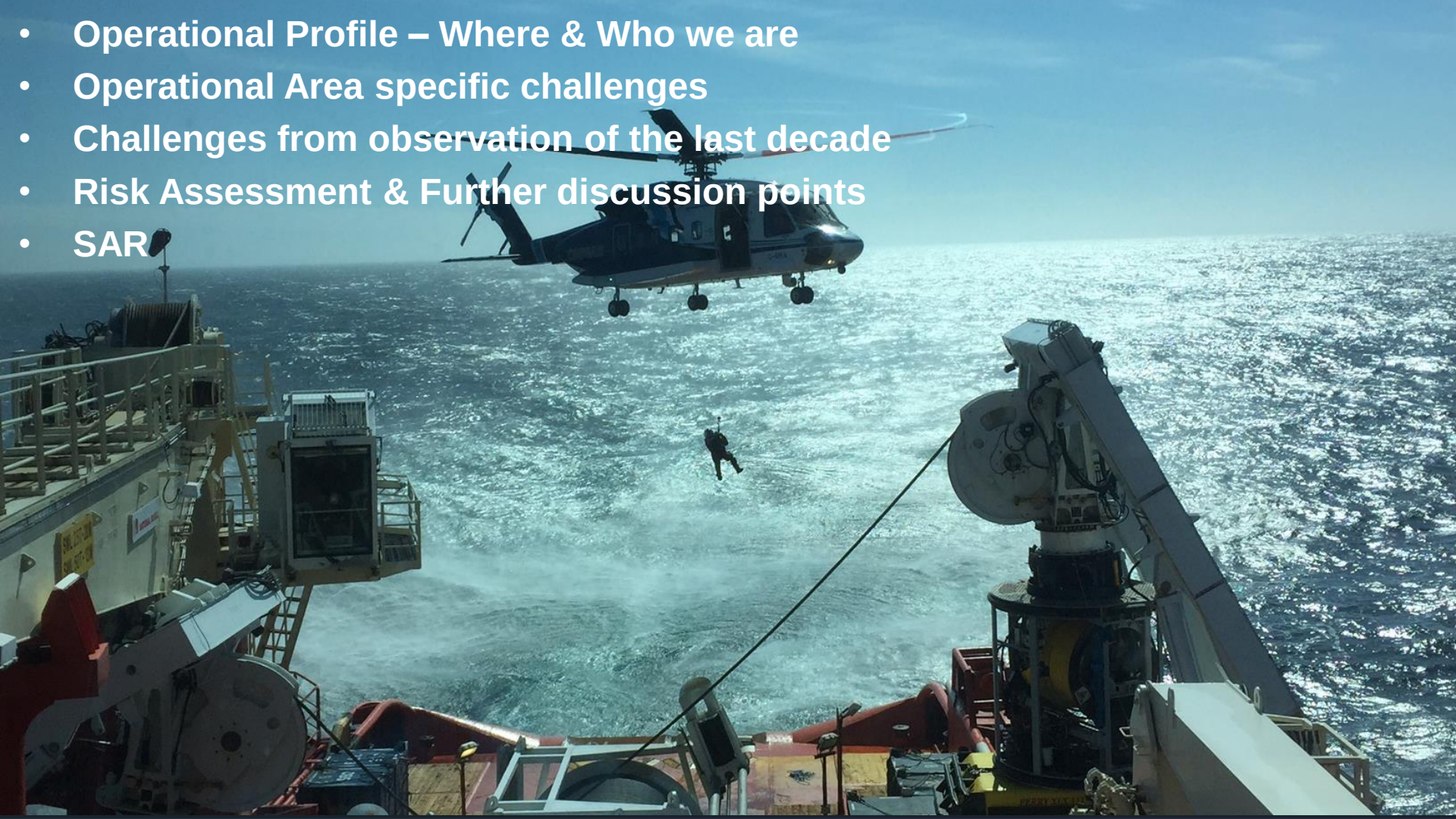
Original, 24Apr2017



- Operational Profile – Where & Who we are
- Operational Area specific challenges
- Challenges from observation of the last decade
- Risk Assessment & Further discussion points
- SAR

Who We Are

Bristow

VIH AVIATION GROUP

Canadian Asset Holding Company

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IFR Offshore Helicopter Operations, Canada & International

VIH AEROSPACE
A VIH Aviation Group Company

Manufacturing, Repair and Overhaul

- Specialized Repair
- MRO
- Mission Specific Products

VIH HELICOPTERS USA, Inc.

Building Leasing

VIH HELICOPTERS
A VIH Aviation Group Company

VFR Helicopter Operations, Canada and International

- Logging
- Firefighting
- Aerial Construction

YYJ FBO SERVICES
A VIH Aviation Group Company

Full Service FBO

Victoria International Airport, Canada

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Our History

1984 - Incorporated
1990 – First Offshore Work
1995 – Awarded Offshore Support Contract – NL
1998/2002 – Additional Offshore NL Contracts
2003 – Purchased by VIH
2005 – Introduced S-92 to Fleet
2010 – Halifax heliport at CYHZ
2011 – Bristow Helicopters Invests in Cougar
2014 – Awarded Multi-Year Consortium Contract For NL Offshore
2016 – New Base Facilities CYYT


Where We Are

Who We Are


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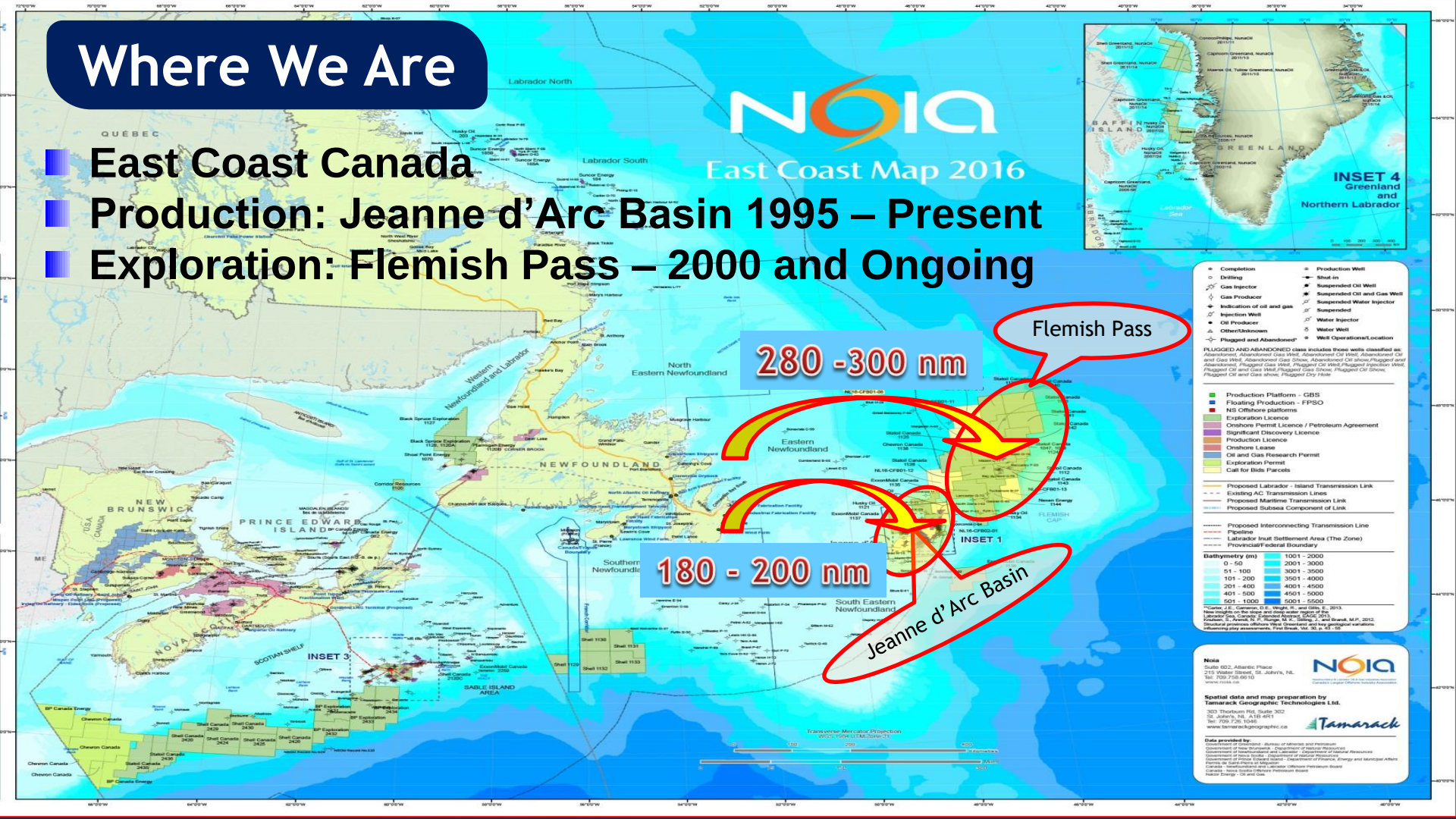
VIH
AVIATION GROUP
Bristow
COUGAR
COUGAR
OFFICE
DEPARTURES
ARRIVALS

Who We Are

- 250 Employees
- Oil & Gas Pax Transport
- 2016 - 42,000 pax movements
- 3 Major Oil Companies as Customers
- 2 Bases
- 24/7 SAR capability with
- 20 Min Wheels Up Response

Where We Are

- East Coast Canada
- Production: Jeanne d'Arc Basin 1995 – Present
- Exploration: Flemish Pass – 2000 and Ongoing



The Aircraft

Challenge 1

How a helicopter gets and stays airborne

L = Lift, w

ρ = d

v = v cond

s = the wing (blade) area of an aircraft in square feet

CL = Coefficient of lift , which is determined by the type of airfoil and angle of attack

L = Jet A1

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Fuel, Fuel, Fuel

14 Pax Config

Challenge 2

First Response from Installation

- Accommodation and technical support
- On site Medical Support
- Evacuation - compassionate & medical
- Rescue - offshore, supply vessels & local

Distance Logic

Medium / Heavy helicopter

- About 7,000 lbs fuel = roughly 900 lbs available = roughly 4 pax (NL average)
- 7,000 lbs fuel = 5:10 fuel time

  - Minus time on deck, reserves & approach

- 4:20 min fuel @ 135 kts = 584 nm one way - (no wind & ideal ATC)
- 292 nm round trip = 4 pax
- Expand the MGTOM - roughly 10 pax

> IAS to 150 kts = 640 nm

> IAS to 180 kts = 770 nm

or 584 nm in 3:54 (> pax)

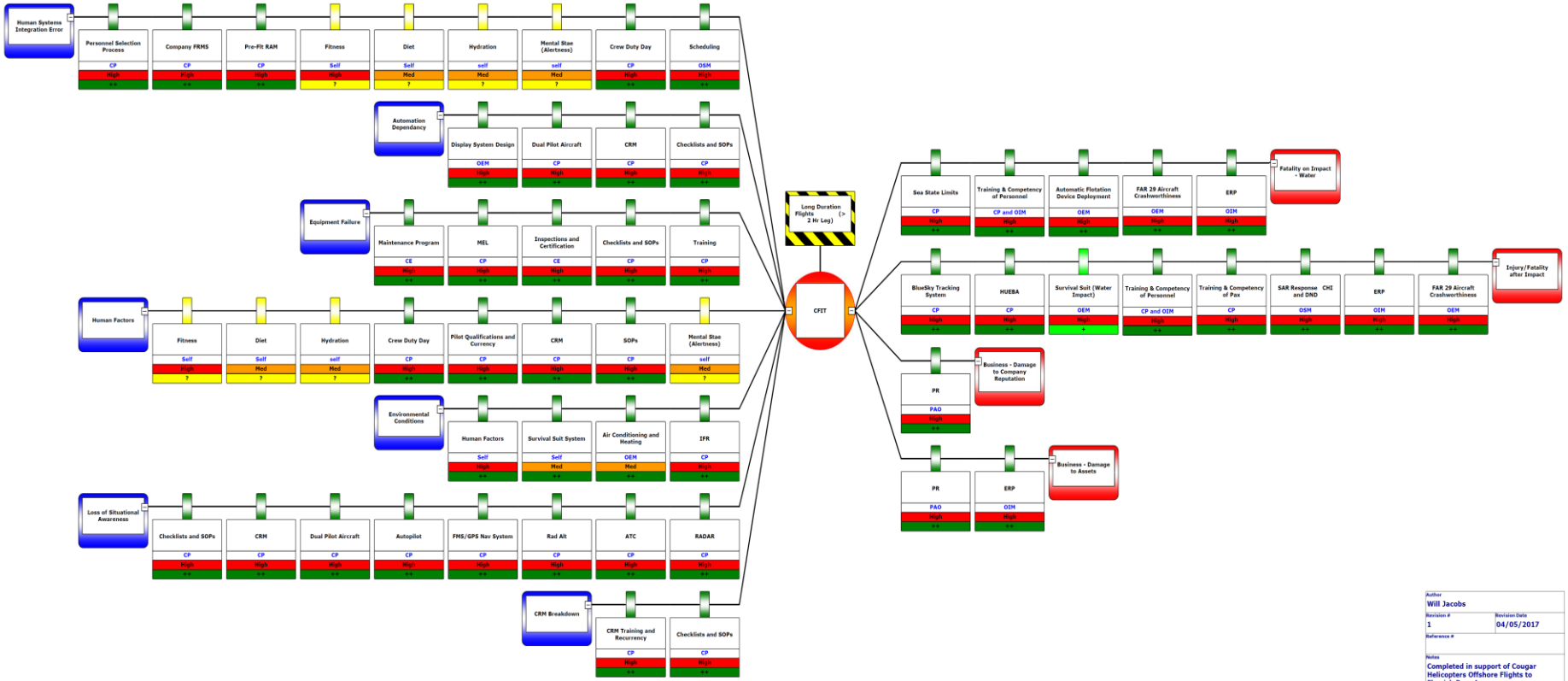
or 584 nm in 3:14 (>> pax)

The Future

Operational Area Challenges

- Icing
- Low visibility frequency (onshore & offshore)
- Deck conditions
- Time of Day (into the sun both ways)
- Strong wind (into wind both ways)
- Power restriction
- Crew Fatigue

Risk Assessment



Author: Will Jacobs

Revision #: 1

Revision Date: 04/05/2017

Reference #:

Notes: Completed in support of Cougar Helicopters Offshore Flights to Flemish Pass Area

Environment

Flight Gear

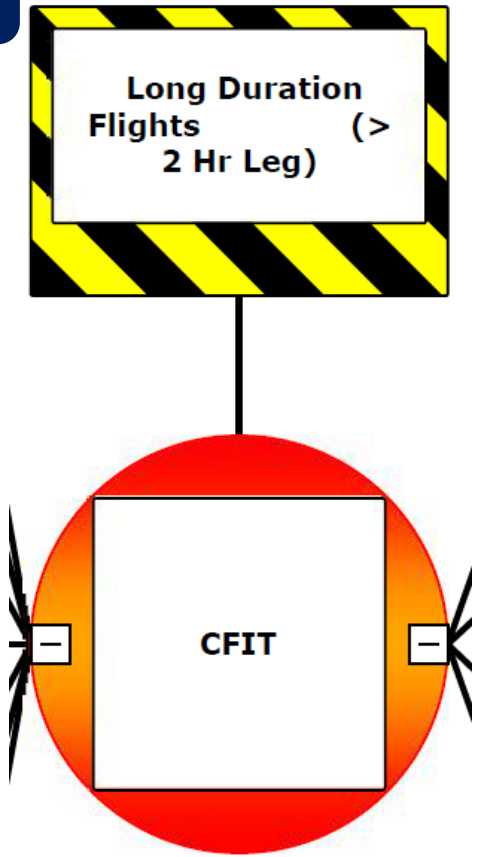
Nutrition / Hydration

Survival Equipment

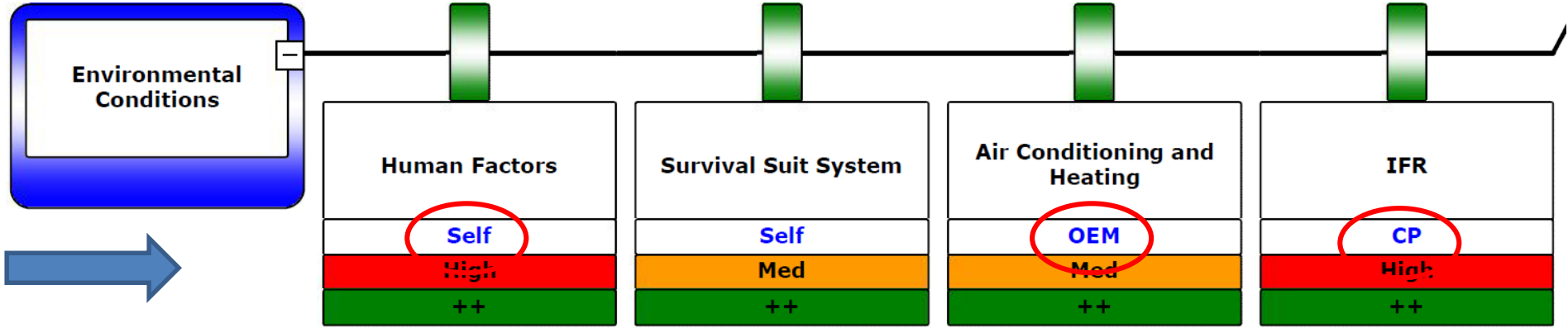
Comfort

Equipment / Automation

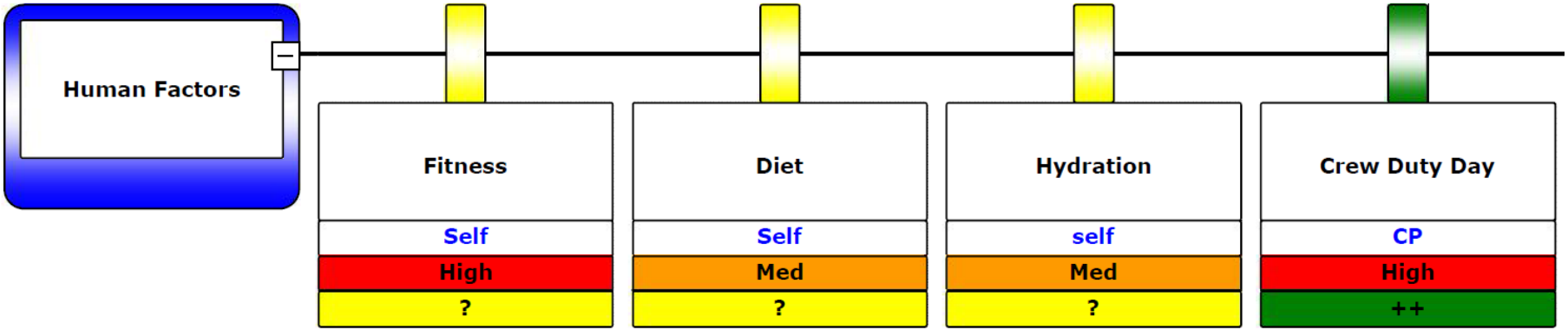
Risk Assessment (1)



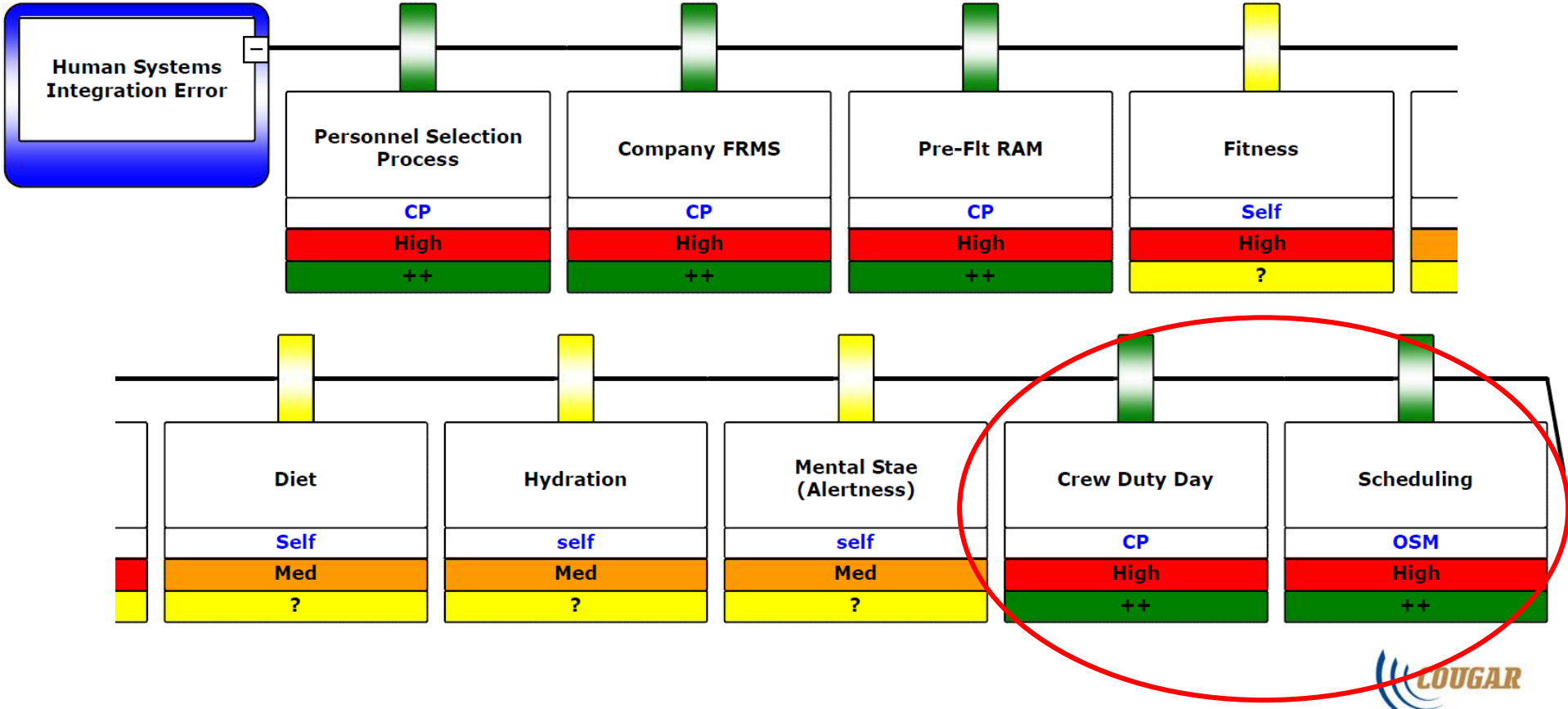
Risk Assessment (2)



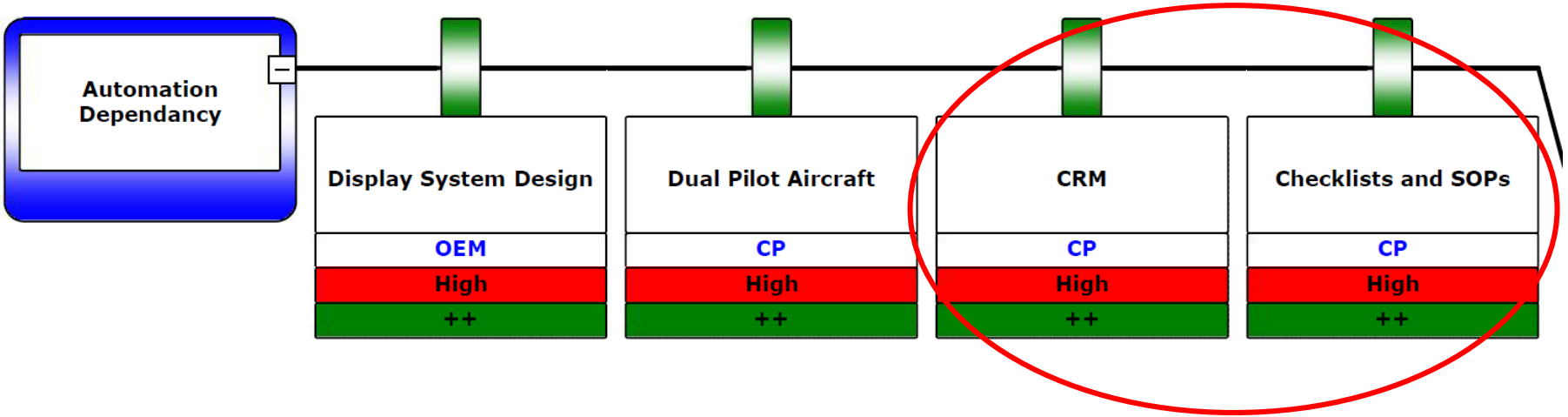
Risk Assessment (3)



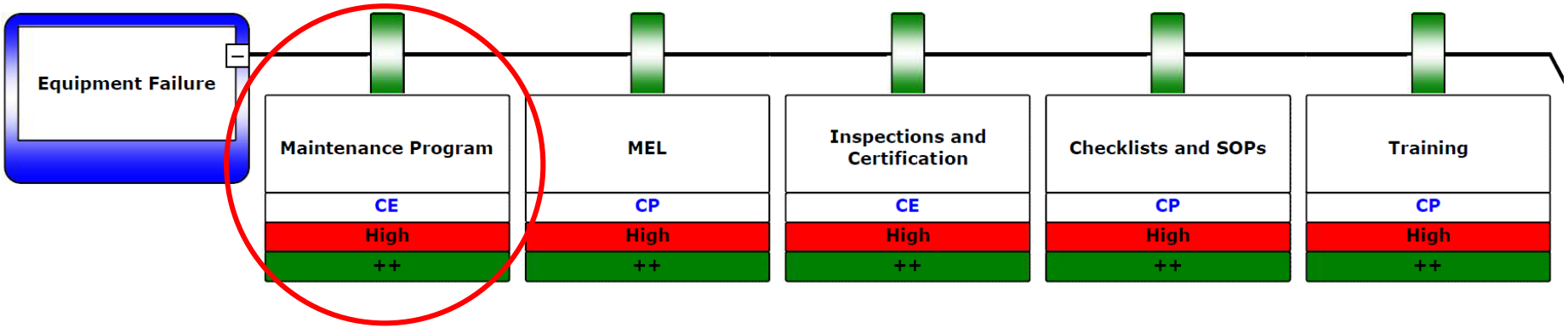
Risk Assessment (4)



Risk Assessment (5)



Risk Assessment (6)



ETOPS ?

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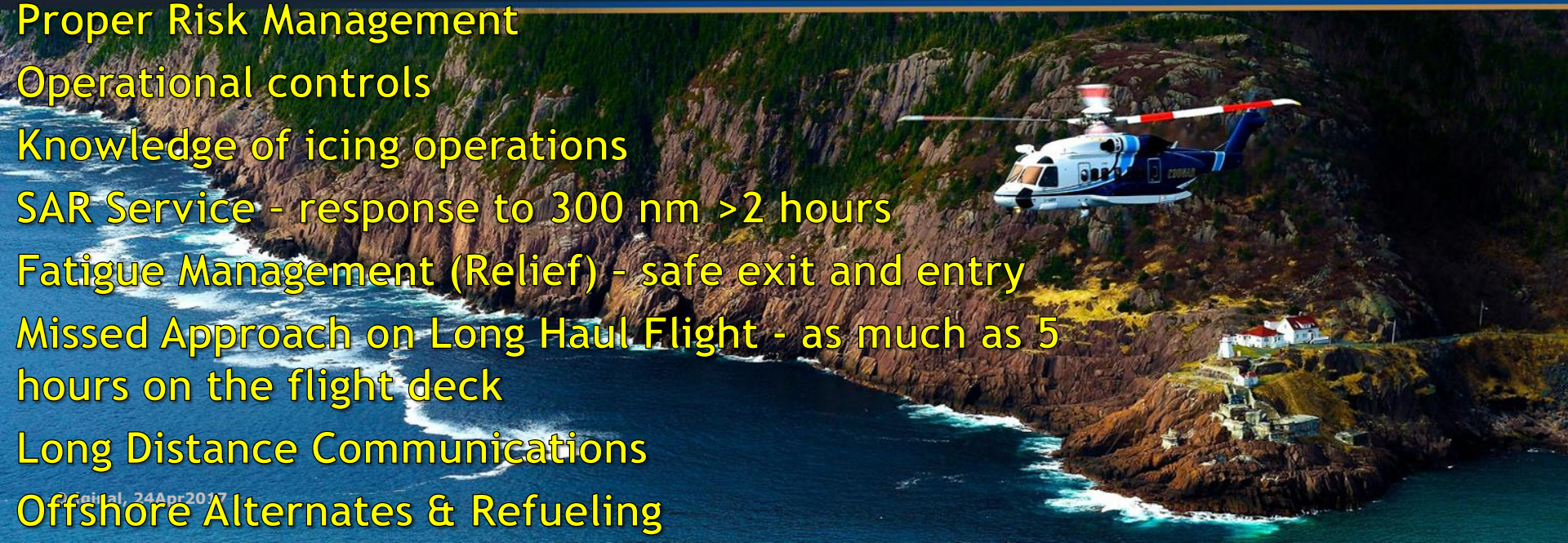
Operational Considerations



- Proper Risk Management
- Operational controls
- Knowledge of icing operations
- SAR Service – response to 300 nm >2 hours
- Fatigue Management (Relief) – safe exit and entry
- Missed Approach on Long Haul Flight - as much as 5 hours on the flight deck
- Long Distance Communications
- Offshore Alternates & Refueling

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Maintenance Considerations

- Understanding the de-icing system
- HUMS monitoring
- Long Distance Communications
- Aircraft Preparation
- Adapted Maintenance Program (similar ETOPS)

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SAR Aircraft Capability

- **On scene time:**
  - **Descend and establish hover – 10 min**
  - **Deployment – 4 min**
  - **Recovery – 4 min**

Cruise to site & departure = 18 min +

4 min per person

7000 lbs of fuel

- **6 pax = 30 min / xx nm**
- **8 pax = 38 min / xx nm**
- **10 pax = 46 min / xx nm**

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SAR Operational Capability

- Passenger Aircraft
  - Range / time on scene
- Response Time

PLUS

- Backup Systems
  - Dual Hoist
  - Dual FMS
  - Enhanced Medical Training
- Communication - medical
- Human Factors

Where We Are

Helps Define Who We Are

Questions / Discussion

Spring 2017, Ferryland NL

ajsmith.ca