



*A VIH Aviation Group Company*

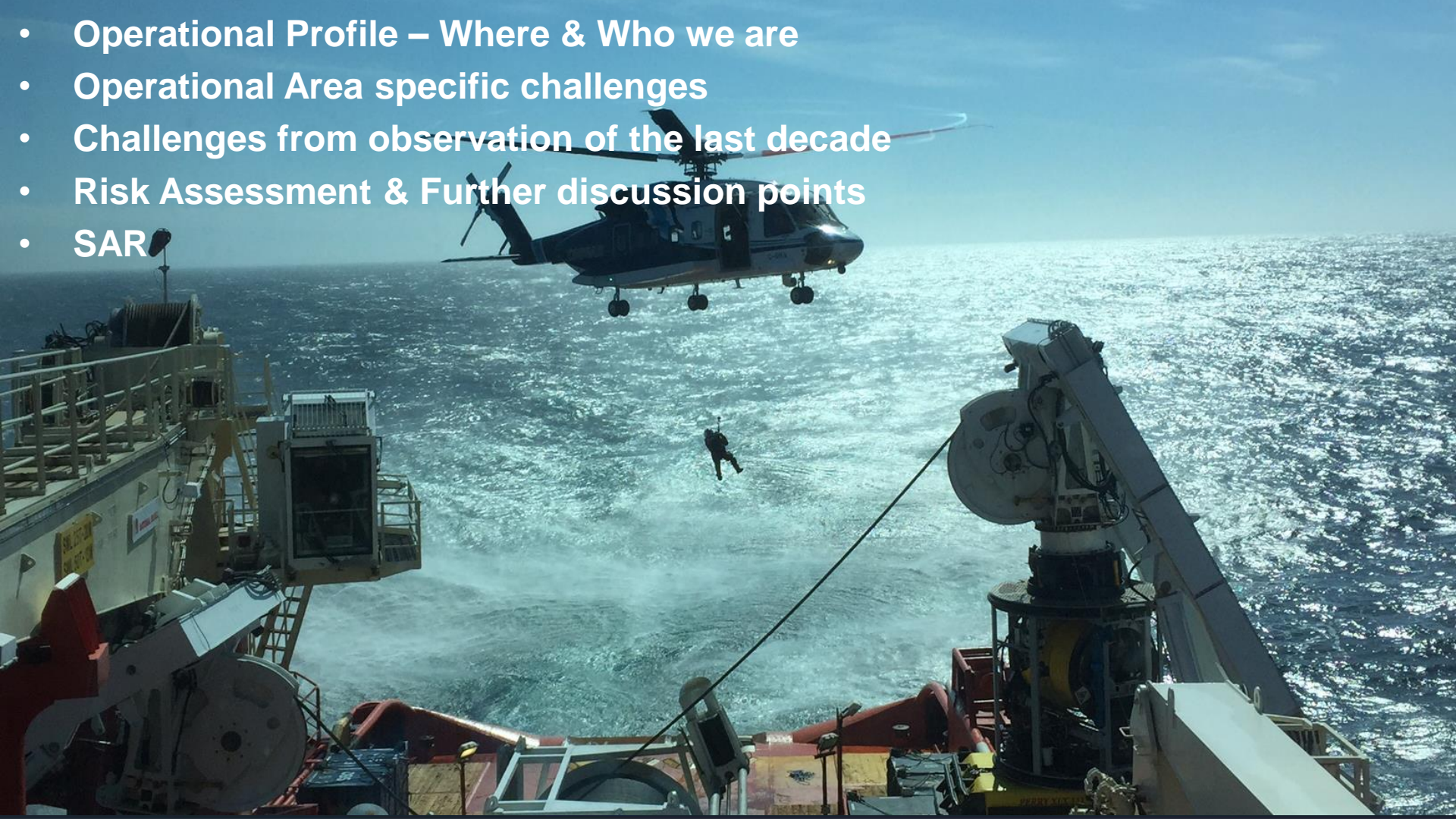
# Long Range Offshore Helicopter Passenger and SAR Operations

J.J. Gerber

Operations Services Manager



- 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



Canadian Asset  
Holding Company



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IFR Offshore Helicopter  
Operations, Canada &  
International



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Manufacturing, Repair  
and Overhaul

- Specialized Repair
- MRO
- Mission Specific Products



Building Leasing



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VFR Helicopter  
Operations, Canada  
and International

- Logging
- Firefighting
- Aerial Construction



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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



# 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

# NOIA

## East Coast Map 2016



280 - 300 nm

Flemish Pass

180 - 200 nm

Jeanne d'Arc Basin

- Completion
  - Drilling
  - Gas Injector
  - Gas Producer
  - Indication of oil and gas
  - Injection Well
  - Oil Producer
  - Other/Unknown
  - Plugged and Abandoned?
  - Production Well
  - Shut in
  - Suspended Oil Well
  - Suspended Oil and Gas Well
  - Suspended Water Injector
  - Suspended
  - Water Injector
  - Water Well
  - Well Operation Location
- PLUGGED AND ABANDONED wells include those with classified as Abandoned, Abandoned Gas Well, Abandoned Oil Well, Abandoned Oil and Gas Well, Abandoned Gas Well, Abandoned Oil show, Plugged and Abandoned, Plugged Gas Well, Plugged Oil Well, Plugged Injection Well, Plugged Oil and Gas Well, Plugged Gas Show, Plugged Oil Show, Plugged Oil and Gas Show, Plugged Oil Well.

- Production Platform - FPSO
  - Floating Production - FPSO
  - No Offshore platforms
  - Exploration Licence
  - Onshore Permit Licence / Petroleum Agreement
  - Significant Discovery Licence
  - Production Licence
  - Onshore Lease
  - Oil and Gas Research Permit
  - Exploration Permit
  - Call for Bids Parcels
- Proposed Labrador - Island Transmission Link
  - Existing AC Transmission Lines
  - Proposed Maritime Transmission Link
  - Proposed Subsea Component of Link
  - Proposed Interconnecting Transmission Line
  - Pipeline
  - Labrador Fruit Settlement Area (The Zone)
  - Provincial/Federal Boundary

Bathymetry (m)	1001 - 2000
0 - 50	2001 - 3000
51 - 100	3001 - 3500
101 - 200	3501 - 4000
201 - 400	4001 - 4500
401 - 500	4501 - 5000
501 - 1000	5001 - 5500

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Government of Manitoba  
Government of Nunavut  
Government of Yukon  
Government of Northwest Territories  
Government of Nunavut  
Government of Yukon  
Government of Northwest Territories



# The Aircraft



# Challenge 1

## How a helicopter gets and stays airborne



L = Lift, w

$\rho = d$

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)

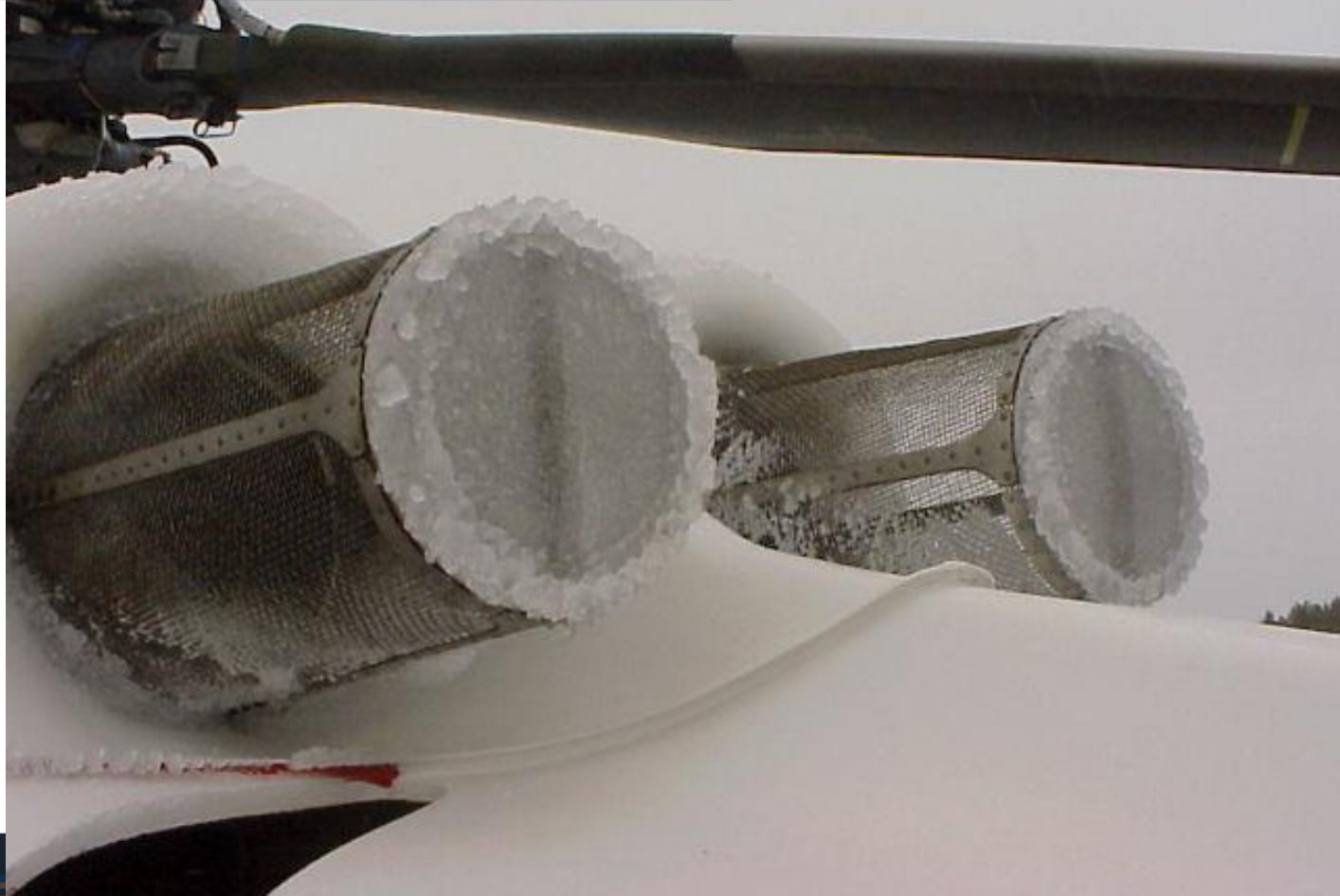
# The Future



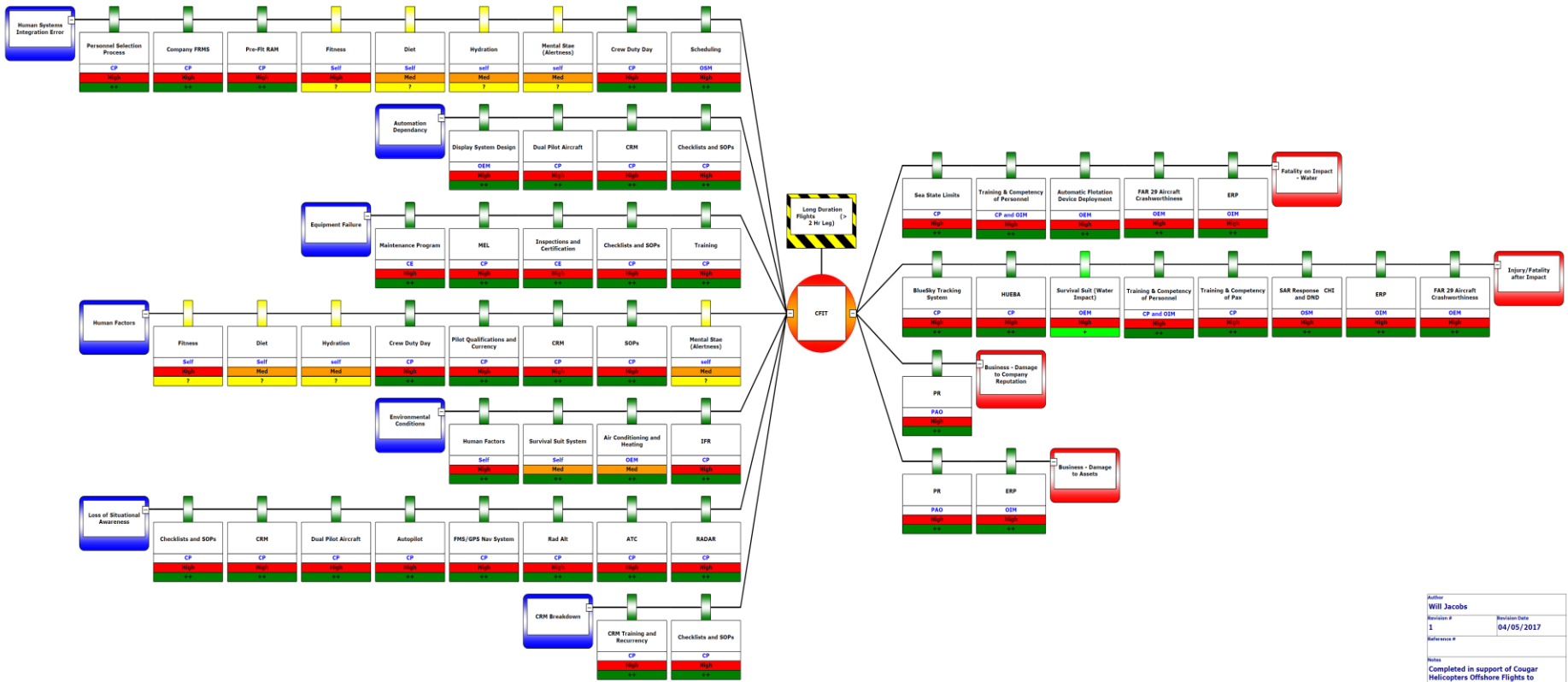
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# Operational Area Challenges

- 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



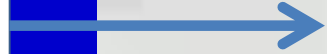
# Risk Assessment



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



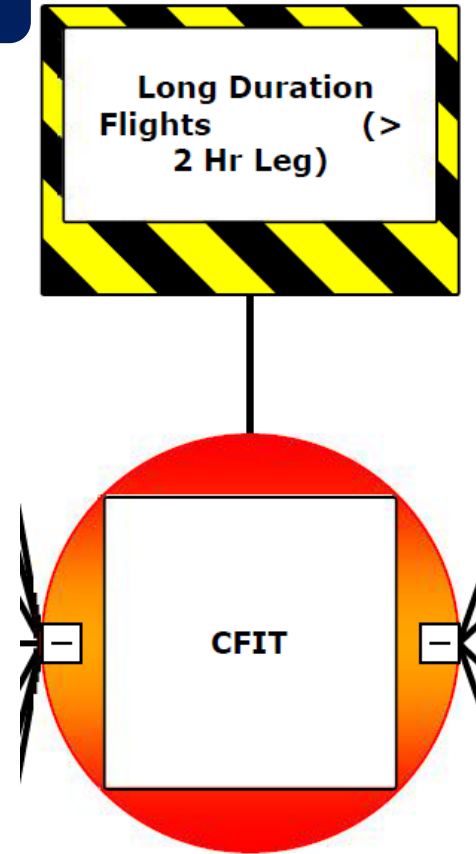
Comfort



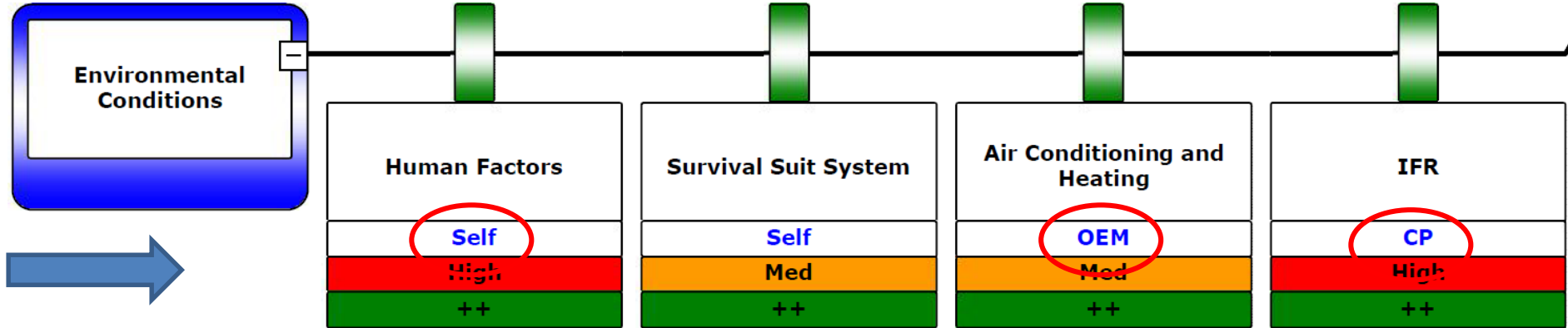
Equipment / Automation



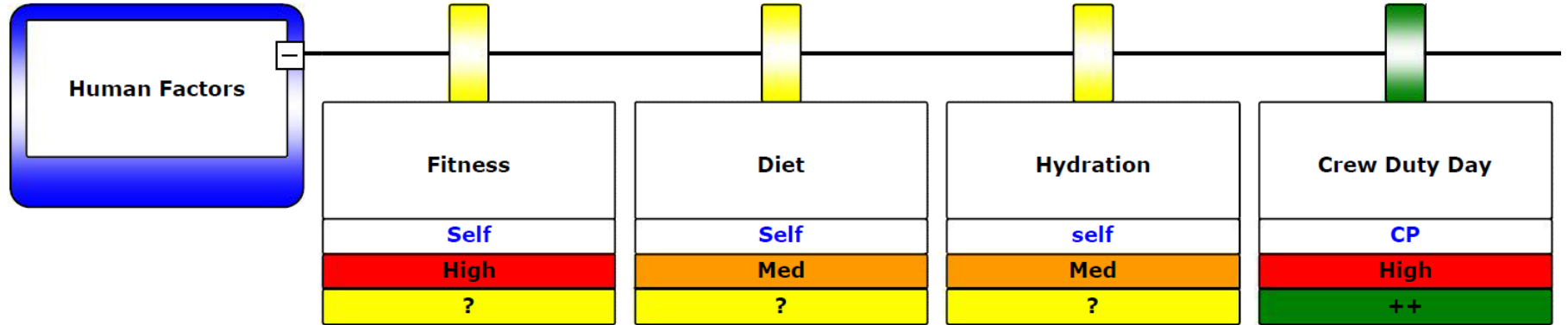
# Risk Assessment (1)



# Risk Assessment (2)

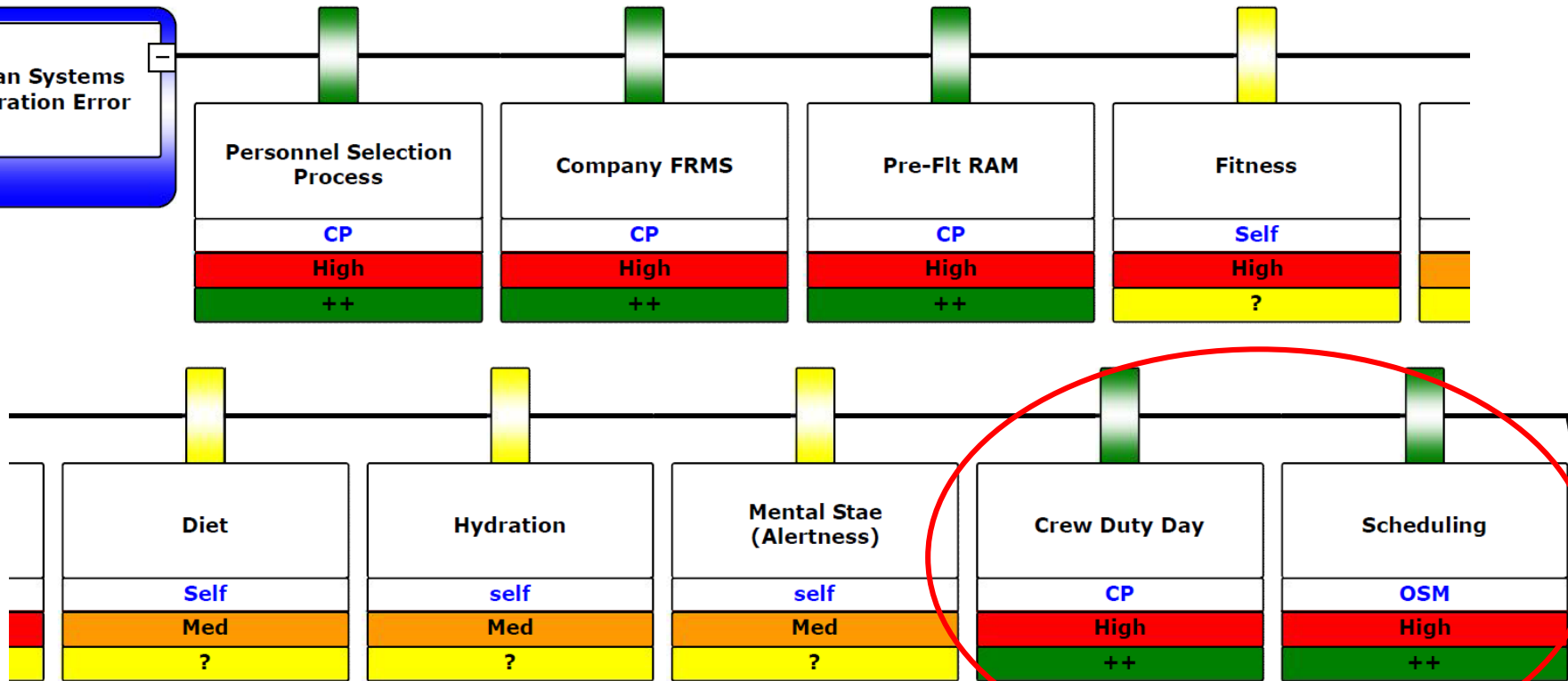


# Risk Assessment (3)

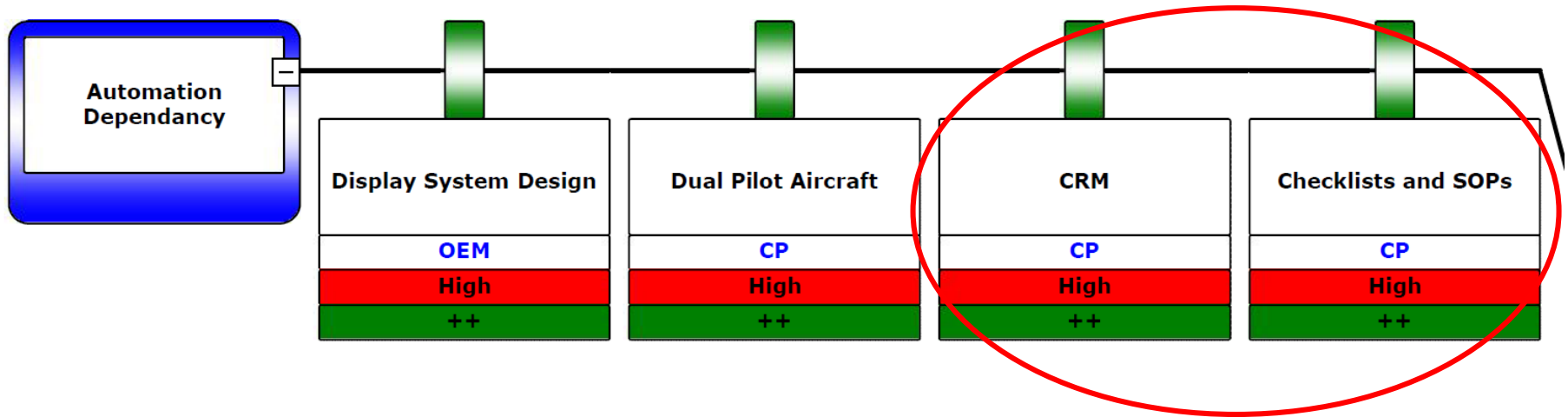


# Risk Assessment (4)

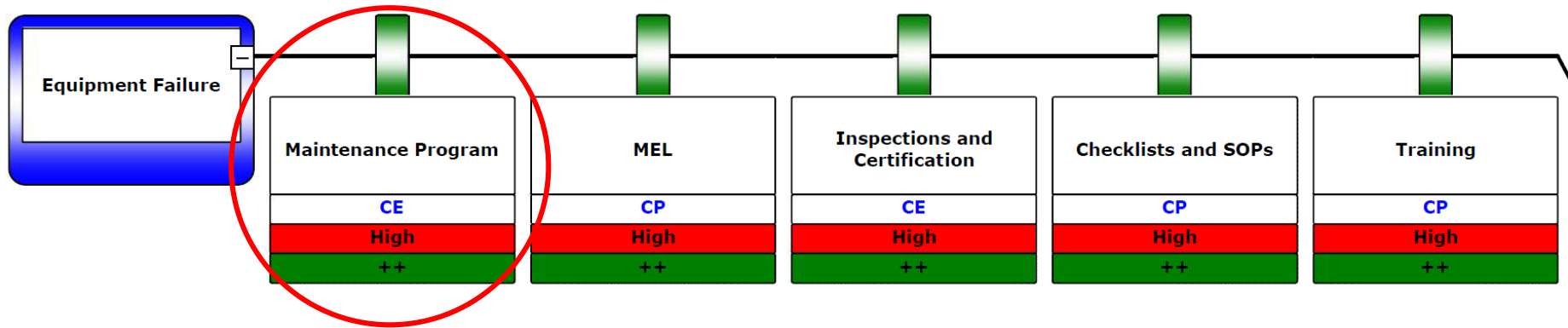
Human Systems  
Integration Error



# Risk Assessment (5)



# Risk Assessment (6)



## ETOPS ?



# Operational Considerations

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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







# Maintenance Considerations

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



# SAR Aircraft Capability

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- **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





# SAR Operational Capability

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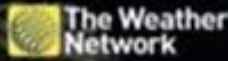
- **Passenger Aircraft**
  - Range / time on scene
- **Response Time**

**PLUS**

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



# Where We Are



Iceberg Alley

GREENLAND

CANADA

Labrador

**ICEBERG  
ALLEY**

Montreal

Newfoundland

St. John's

Nova Scotia

Halifax

Hurricanes

Helps Define Who We Are



# Questions / Discussion



Spring 2017, Ferryland NL