EXHIBIT/P-00125

Offshore Helicopter Safety Inquiry

CAPP Response, December 2009, to Undertaking to Mr. Earle

Transcript November 17, 2009 page 62 lines 6-16

Re: HUEBA 2004 CAPP EPG Meeting Materials

Attachment

Extracts CAPP AC EPG June 3, 2004 agenda and minutes and copy of Power Point Presentation

CAPP
CANADIAN ASSOCIATION
OF PETROLEUM PRODUCERS

EXHIBIT/P-00125

Agenda

600-02-02

CAPP ATLANTIC CANADA EXECUTIVE POLICY GROUP/
ATLANTIC CANADA COMMITTEE JOINT MEETING
Thursday, June 3, 2004
Time: 2:30 NF time
Meeting Location: Atlantic Place Conference Centre - Suite 607
215 Water Street, St. Johns', NL

Call Meeting to Order

1	Introductions and remarks from the Chair	2 Minutes

For Approval

EPG AITC

1-A	Approval of Agenda	2 Minutes
2-A	Review and approval of EPG Summary Notes of February 20, 2004 and ACC Summary Notes of April 14, 2004 (Attachments 1 & 2)	5 Minutes
3-A	Use of Helicopter Escape Compressed Air Devices *Desired Outcome: Approval of the Safety Sub-Committee's recommendation to begin implementing the use of a compressed air device during personnel helicopter transport to eastern Canada offshore facilities* (Attachment 3)	[redacted] 10 Minutes

EXHIBIT/P-00125

CAPP
CANADIAN ASSOCIATION OF PETROLEUM PRODUCERS

Meeting Summary Notes

MEETING DATE: June 3, 2004

COMMITTEE: Atlantic Canada Executive Policy Group/Atlantic Canada Committee

NOTE TAKER: Paul Barnes/[redacted]

Attendees

In St. John's

Paul Barnes, CAPP
[redacted] CAPP
[redacted] CAPP
[redacted] CAPP
[redacted] Murphy Oil Company
[redacted] Shell Canada
[redacted] ExxonMobil Canada
[redacted] ExxonMobil Canada

[redacted] Chevron Canada Resources
[redacted] Norsk Hydro
[redacted] Petro-Canada
[redacted] EnCana Corporation
[redacted] Marathon Canada Petroleum ULC
[redacted] Imperial Oil Resources
[redacted] ConocoPhillips Canada

Via Teleconference
[redacted] EnCana Corporation
[redacted] ExxonMobil

1-A Approval of Agenda

Agenda was approved with the following additional items: [redacted]

2-A Summary Notes from February 20, 2004 were approved as prepared.

3-A Use of Helicopter Escape Compressed Air Devices

P. Barnes gave an overview of the Atlantic Canada Safety Sub-Committee's recommendation to implement the use of a compressed air device for all personnel transporting to the offshore platforms by helicopter. Over the past two years the committee investigated two device options: hybrid rebreather and compressed air and recently decided that the compressed air was the preferred device. Training on such a device will be a component of the BST course (and BST refresher course) and will also be included in the safety video shown at the heliport prior to each helicopter departure. Estimated costs for the devices are: compressed air (state of the art unit) – 100 units five years total price $119,000.00, Rebreather 100 units five years total price $137,000.00. Subject to further discussions with the training institutions (Survival Systems Limited and Marine Institute), helicopter contractors, system providers, the offshore workforce and with the offshore petroleum boards, these devices will be in use early in 2005.

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Action:

- ✓ The EPG approved the Safety Sub-Committee's recommendation.

Helicopter Underwater Escape Breathing Apparatus

Decision on appropriate devise for east coast operations

Purpose

- Foster broader knowledge and understanding of the differences between a compressed air breathing system and a rebreathing systems used for helicopter underwater escape.

Stats*

98 water impacts included in analysis (1971-1992)

902 occupants involved

48 fatal accidents 338 fatalities

57 crew members

281 passengers

survival rate of 62.5%

In 24 accidents where the cause of death was known

162 fatalities

92 drowned

56.7% of fatalities were the result of drowning (where the cause of death was known).

*World Civil Helicopter Water Impacts: Summary of Occupant Injuries. Courtesy Clifford (1996).

Why People Perish

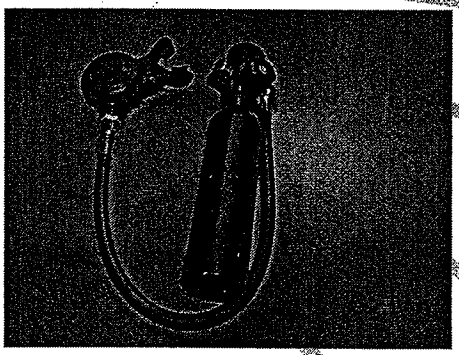
- Survival will be determined by an individuals' breath-hold time.
- Cold shock (Tipton, Stubb, Elliott, 1991 Human Initial Responses to Immersion in Cold Water at 3 Temperatures and Following Hyperventilation).
- Gasp reflex and hyperventilation.
- Cardiac Arrhythmias

The Solution

- Provide some form of air system.
- Scientific Study. An Initial Investigation of Passenger Evacuation from the Super Puma Helicopter. Brooks, Muir, Gibbs. (March 1999).
- Study showed under controlled conditions there was a breath-hold requirement of between 27-92 seconds.
- In 2000, Brooks provided more scientific data on breath hold ability which also stated that scuba-trained personnel (compressed air) had a significantly longer breath hold capability.

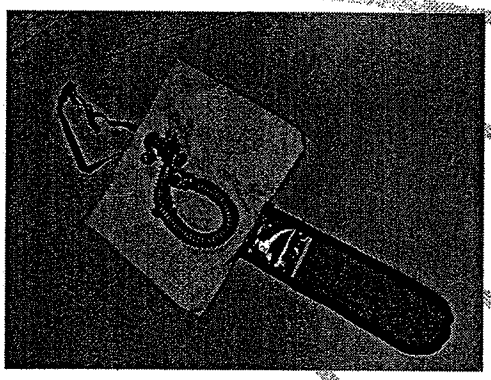
Types of Systems

Compressed Air



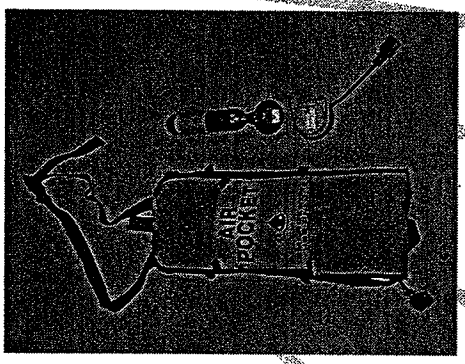
Types of Systems

Rebreather



Types of Systems

Rebreather Hybrid



Systems Specifications

COMPRESSED AIR

- Working pressure 1800 lbs psi - 3400 lbs
- Volume 42 litres - 80 litres
- System weight - approximately 3 lbs.
- Regulator - first stage
- Demand valve - second stage
- Duration of air supply approximately 21 breaths at 21 feet*

*based on an average breath volume of 1.5 litres at a breath rate 10.5 bmp with a starting pressure of 3000 psi.

REBREATHER/HYBRID

- Atmospheric pressure
- Volume = Lung volume + 3.5 litres
- System weight - 2.25 lbs.
- Regulator - not required
- Demand valve - not required
- Duration - ?

REBREATHER (HYBRID)

POSITIVE

- Simple
- Wet training required
- Maintenance required

NEGATIVE

- Danger of Hypoxia
- Breathing resistance changes with orientation and depth
- Requires inspiration prior to use.
- Complex procedure to follow to make operational during critical part of flight
- No purge capability (can not be operated under water
- Max time 90 seconds before passing out
- Hybrid ⟶ Air embolism
- Integration difficulties

COMPRESSED AIR

POSITIVE	NEGATIVE
• Duration 2 - 6 minutes*	• Air embolism
• Several types available	• Integration difficulties
• Purge capability*	
• Proven in real accidents*	
• Wet training required	
• Maintenance required	

Training Requirements

Compressed Air System

- Theory
- Practical Wet
- Practical underwater egress training

Rebreather

- Theory
- Practical Wet
- Practical underwater egress training

Maintenance

Compressed Air System

- User visual check
- Recharge
- 1 year check cylinder and O-rings
- 5 year hydrostatic test cylinder and O-rings

Rebreather

- User visual check
- Re-pack
- 5 year replace gas cylinder, operating mechanism, O-rings and swivel elbow

Integration

Flight Commander **Helly Hansen**

Conclusion

The compressed air systems is the preferred system throughout the world. The training for this system can now be completed with very little risk to the operator.