

PHASE II SUBMISSION

On Behalf Of The

**CANADA – NEWFOUNDLAND AND LABRADOR OFFSHORE
PETROLEUM BOARD**

AMY M. CROSBIE
Curtis, Dawe
Solicitors for the C-NLOPB
11th Floor, Fortis Bldg.
139 Water Street, PO Box 337
St. John's, NL, A1C 5J9

Following the receipt of the Phase I Report and Recommendations from this Commission, the C-NLOPB has established a team comprised of Board staff, worker representatives, operator representatives, a representative from Cougar, and representatives from other agencies where necessary (the “Team”).

The Team is under the direction of two experts in the field of safety and aviation, Peter McKeage and Terrance Kelly. These individuals have been retained specifically for the purpose of reviewing, analyzing and making recommendations for implementation for each of the Recommendations from Phase I (“Inquiry Recommendations”).

Peter McKeage is a former Commanding Officer 424 Squadron and Wing Commander 9 Wing Gander and has been retained by the C-NLOPB as an Aviation Safety Advisor. Mr. McKeage has a long and distinguished search and rescue background predominantly on the east coast that spans from 1979-2005. He has over 28 years of strategic, operational and tactical military flying experience. He has accumulated over 5100 hours of pilot in command experience on numerous aircraft, including the Labrador and Cormorant Helicopters.

Terry Kelly is the President and founder of *SMS Aviation Safety Inc.* based in Ottawa and has been retained by the C-NLOPB as a Safety Advisor. Mr. Kelly has 30 years experience progressively as a professional pilot, accident investigator, safety analyst, safety evaluator, and safety advisor to industry executives and senior management of Civil Aviation Authorities. Much of his work focuses on the design and evaluation of aviation safety management systems; procedures for the proactive safety management of change; and the design and application of practical, proactive safety measurement tools. He is an internationally recognized advisor to industry executives and government officials who develop and implement long-term transportation plans, policies and safety programs. He is recognized for his expertise in conducting proactive, strategic-level risk assessments and has extensive experience in evaluating the safety performance of organizations across all sectors of the aviation industry.

The Team has been working full time since January 2011, and will continue to work on a part time basis after the end of April 2011. The Team has begun providing response recommendations to the Board on the Commissioner’s Phase I Recommendations and expects to have completed its work by the end of 2011.

Phase II of the Offshore Helicopter Safety Inquiry requires the Commissioner to review the sections of the report of the TSB investigation into the crash of Cougar 491 that are specifically within the mandate of the C-NLOPB, with particular attention to the findings (“TSB Findings”), and then advise the C-NLOPB which of the TSB Findings should result in actions being recommended to be undertaken by the C-NLOPB.

The Commission shall also advise the C-NLOPB which TSB Findings should result in actions being recommended to be undertaken by other legislative or regulatory agencies.

The purpose of this submission is to identify for the Commissioner which TSB Findings the C-NLOPB considers being within its mandate and which should result in review of recommendations being undertaken by the C-NLOPB.

The C-NLOPB has undertaken its review of the TSB Findings in concert with the Inquiry Recommendations. For ease of reference, this submission reiterates each of the TSB Findings and identifies those within the C-NLOPB mandate and those within the mandate of other legislative or regulatory bodies and then correlates them to the Inquiry Recommendations, where applicable. The TSB Finding number corresponds to the numbering contained in the TSB report.

TSB FINDINGS RELATING TO THE C-NLOPB

The C-NLOPB states that there are several TSB Findings within the jurisdiction of the Board. None of these require further recommendations from the Commissioner.

It is the position of the C-NLOPB that the Phase I report of this Commission was comprehensive such that there are no new issues arising from the TSB Findings that require new recommendations to the Board. The Inquiry Recommendations contained in the Phase I report address all of the TSB Findings.

The C-NLOPB submits that the following TSB Findings are within the jurisdiction of the C-NLOPB:

2. In distant offshore operations, including the East Coast of Canada, a 30-minute run dry MGB capability may not be sufficient to optimize eventual landing opportunities.

In relation to the TSB report this TSB Finding is directly related to the TSB Recommendation A11-02:

Recommendation

A11-02

The Federal Aviation Administration assess the adequacy of the 30 minute main gearbox run dry requirement for Category A transport helicopters.

TSB Recommendation A11-02 is directed at air regulators and in particular the Federal Aviation Administration. The C-NLOPB has no jurisdiction in relation to regulation of helicopter operating limitations.

The C-NLOPB acknowledges that it has the ability to place additional requirements on the operators in relation to helicopter transportation safety. Inquiry Recommendations 22 and 23 deal with this issue by recommending that the C-NLOPB acquire sufficient aviation expertise and establish appropriate areas of oversight for helicopter transportation.

14. The current basic survival training (BST) standards in Canada lack clearly defined, realistic training standards and equipment requirements. This could lead to differences in the quality of training and affect occupant survivability.

15. An interval of 3 years between recurrent BST may result in an unacceptable amount of skill decay between recurrent training sessions. This skill decay could reduce the probability of successful egress from a submerged helicopter.

Inquiry Recommendation 13 specifically states that training should involve greater fidelity and more broadly states that safety training goals should be established by the C-NLOPB in consultation with the suppliers of personal protective equipment (PPE), trainers, oil operators and worker representative. This would involve a review of the interval between BST refresher courses.

16. Passenger Transportation Suit Systems (PTSS) designed to meet the standard for marine abandonment have high buoyancy and flotation capabilities. While useful in a marine abandonment situation, these features may interfere with a successful egress from a submerged helicopter.

17. There are minimal regulations and standards pertaining to offshore helicopter flight crew suit use and maintenance. This increases the risk that flight crews will be inadequately protected following a ditching or crash at sea.

18. Offshore helicopter flight crew suits that are not a high visibility colour reduce the probability of detection by search and rescue crews following a ditching or crash at sea. This could significantly delay rescue at night or in bad visibility.

19. Without regulations and standards pertaining to personal locator beacons (PLB) for helicopter occupants, inappropriate PLB types may be selected for helicopter transportation, resulting in delays locating a person floating in the ocean.

The C-NLOPB does not regulate air operators. However, Inquiry Recommendation 16 states that additional personal protective equipment for use by the pilots and passengers should be studied and then discussed with Transport Canada and other stakeholders.

20. The use of improper passenger transportation suit system (PTSS) fitting techniques may result in unacceptable levels of water ingress and a subsequent rapid loss of body temperature, following a ditching or crash at sea.

The Canadian General Standards Board (CGSB) is reviewing the standard for the PTSS. In any event, the operators in the Newfoundland and Labrador Offshore implemented a new sizing technique prior to return to flight following the crash of Cougar 491.

21. There is no requirement for occupants of a helicopter to be equipped with EUBAs for prolonged over water flight. As a result, occupants are exposed to an increased risk of drowning following a ditching or crash at sea.

The C-NLOPB has made it a requirement that all passengers on flights to and from installations be trained on and equipped with EUBAs. It is the jurisdiction of Transport Canada to make such a requirement a regulation applicable to all prolonged overwater flights. Inquiry Recommendation 13 relates to training aspects associated therewith.

22. The lack of regulation requiring pilots to wear helmets and visors places them at greater risk of incapacitation due to head injuries following a ditching or crash. This type of injury jeopardizes a pilot's ability to assist in the safe evacuation and survival of the passengers.

Inquiry Recommendation 15 specifically addresses this issue. The enactment of a regulation is solely within the jurisdiction of Transport Canada.

23. Ditching in adverse weather conditions, and sea states in excess of the capability of the emergency flotation system (EFS), places passengers and crew at risk.

Inquiry Recommendation 9 covers this aspect of operational requirements that are in addition to those required by Transport Canada.

24. If offshore helicopter EFS systems are only designed to withstand the force associated with a ditching, there is a continued risk that these systems will be disabled in survivable impacts contributing to occupant deaths from drowning. (Transport Canada)

Issues relating to the certification of the helicopter are the jurisdiction of Transport Canada. However, Inquiry Recommendation 9 deals with limits on helicopter operations in adverse sea states and conditions and Inquiry Recommendation 27 deals with involvement in further research on offshore helicopter safety.

TSB FINDINGS RELATING TO OTHER REGULATORY BODIES

The C-NLOPB submits that the following TSB Findings are within the jurisdiction of other regulatory bodies, specifically Transport Canada or the Canadian General Standards Board:

- 1. Certification standards for Category A rotorcraft do not require a capability of continued safe operation for 30 minutes following a failure that leads to loss of MGB lubricant if such failures are considered to be extremely remote, placing passengers and crew at risk.*
- 2. In distant offshore operations, including the East Coast of Canada, a 30-minute run dry MGB capability may not be sufficient to optimize eventual landing opportunities.*
- 3. Inadequate systems knowledge related to abnormal and emergency conditions increases the risk of pilots relying on previously learned knowledge. This could lead to unintentional errors in interpreting symptoms of a system malfunction.*
- 4. The decision not to identify time critical actions as memory items in the S-92A MGB malfunction procedure could lead to delays in carrying out actions that are vital to the safe continuation of flight.*
- 5. The decision not to automate an emergency system activation, such as the MGB oil bypass system in the S-92A, increases the risk that critical actions will be omitted or delayed unnecessarily.*
- 6. The lack of established standards for landing guidance definitions used in abnormal and emergency procedures leaves the definitions open to misinterpretation.*
- 7. The lack of specific guidance and/or recommendations in the RFM pertaining to optimum airspeed and torque setting could result in the selection of a flight profile that accelerates the catastrophic failure of a gearbox that has lost oil pressure.*

8. *The combination of abnormal and emergency procedures into a single procedure, which focuses first on the abnormal condition, increases the risk that critical emergency actions will be delayed or omitted.*

9. *If manufacturers do not clearly identify critical aircraft performance capabilities in flight manuals, such as run dry time, there is increased risk that pilots will make decisions based on incomplete or inaccurate information during abnormal and emergency situations.*

10. *The omission of caution or warning messages from a quick reference legend could result in delays in locating the appropriate abnormal or emergency response in a pilot checklist.*

11. *The use of non-current publications such as RFM, standard operating procedures (SOPs) and checklists, increases the risk that critical steps of an approved procedure will be omitted or delayed.*

12. *Under the current regulations, CAR 703 and 704 operators are not required to provide CRM. As a result, there is an increased risk that crews operating under CAR 703 or 704 will experience breakdowns in CRM.*

13. *The current CRM regulation and standard for CAR 705 operators have not been updated to reflect the latest generation of CRM training or to include CRM instructor accreditation. As a result, there is a risk that flight crews may not be trained in the latest threat and error management techniques.*

TSB Findings from #1 - #13 are outside the mandate of the Board and can only be addressed by Transport Canada, the manufacturer, air operator and other aviation regulators.

16. *Passenger Transportation Suit Systems (PTSS) designed to meet the standard for marine abandonment have high buoyancy and flotation capabilities. While useful in a marine abandonment situation, these features may interfere with a successful egress from a submerged helicopter.*

The standards for Passenger Transportation Suit Systems are developed by the Canadian General Standards Board and then this standard is 'called up' in the CARs by Transport Canada for flights over water. The CGSB is reviewing these standards and certifications with expected changes to the standard in 2011 or 2012. Inquiry Recommendation 16 relates to further study and consultation into PPE for helicopter passengers.

17. There are minimal regulations and standards pertaining to offshore helicopter flight crew suit use and maintenance. This increases the risk that flight crews will be inadequately protected following a ditching or crash at sea.

This TSB Finding relates specifically to regulations by Transport Canada in relation to the use and maintenance of helicopter pilot's PPE. The C-NLOPB cannot enact regulations in relation to helicopter pilots. Inquiry Recommendation 16 relates to further study and consultation into the need for additional PPE for the helicopter pilots.

18. Offshore helicopter flight crew suits that are not a high visibility colour reduce the probability of detection by search and rescue crews following a ditching or crash at sea. This could significantly delay rescue at night or in bad visibility.

The current standards for helicopter pilot suits are developed by Transport Canada and then the individual suits are chosen by the air operator – in this case Cougar. The C-NLOPB does not regulate air operators. Inquiry Recommendation 16 relates to PPE worn by helicopter pilots.

19. Without regulations and standards pertaining to personal locator beacons (PLB) for helicopter occupants, inappropriate PLB types may be selected for helicopter transportation, resulting in delays locating a person floating in the ocean.

Regulations and standards for personal locator beacons are outside the mandate of the C-NLOPB. Inquiry Recommendation 16 relates to PPE for the helicopter pilots and passengers.

20. The use of improper passenger transportation suit system (PTSS) fitting techniques may result in unacceptable levels of water ingress and a subsequent rapid loss of body temperature, following a ditching or crash at sea.

The Canadian General Standards Board is currently reviewing the standards for the passenger transportation suit system. In addition, since the return to flight in May 2009, the Newfoundland and Labrador offshore industry has been using individual fitting techniques.

21. There is no requirement for occupants of a helicopter to be equipped with EUBAs for prolonged over water flight. As a result, occupants are exposed to an increased risk of drowning following a ditching or crash at sea.

The C-NLOPB has made it a requirement that all passengers on flights to and from installations be trained on and equipped with EUBAs. It is the jurisdiction of Transport Canada to make such a requirement a regulation applicable to all prolonged overwater flights.

22. The lack of regulation requiring pilots to wear helmets and visors places them at greater risk of incapacitation due to head injuries following a ditching or crash. This type of injury jeopardizes a pilot's ability to assist in the safe evacuation and survival of the passengers.

Inquiry Recommendation 15 specifically addresses this issue. The enactment of a regulation is solely within the jurisdiction of Transport Canada.

24. If offshore helicopter EFS systems are only designed to withstand the force associated with a ditching, there is a continued risk that these systems will be disabled in survivable impacts contributing to occupant deaths from drowning.

Issues relating the certification of the helicopter are the jurisdiction of Transport Canada. Inquiry Recommendation 9 deals with limits on helicopter operations in adverse sea states and conditions and Inquiry Recommendation 27 deals with involvement in further research on offshore helicopter safety.

25. Without an immediate signal being transmitted from an emergency locator transmitter (ELT), water attenuation of a useable ELT signal from a submerged aircraft may continue. This increases the risk of an ELT signal not being received and SAR resources not being launched in a timely manner.

26. The use of g-switches for the purpose of stopping a cockpit voice recorder (CVR) or combined CVR/FDR (flight data recorder) will likely continue to result in the loss of potentially valuable CVR or CVR/FDR data. As a result, there is an increased risk that future accident investigations will be impeded.

These TSB Findings are not within the mandate or jurisdiction of the C-NLOPB.

CHANGES SINCE MARCH 2009

Since the crash of Cougar 491 there have been many changes to safety by all the stakeholders involved in the Newfoundland and Labrador offshore. These include:

SAR Response / Night flying

On February 8, 2010, the C-NLOPB received an interim recommendation from Commissioner Wells in relation to Search and Rescue response times. As a result of this correspondence the C-NLOPB provided the operators with a directive, dated February 12, 2010, which stated:

The Commissioner noted and the Board has confirmed that a “one hour wheels up” response for First Response SAR provided by industry should be improved; effective SAR skills must be available in a response situation as quickly as possible. We believe this can only be achieved by having a fully equipped SAR helicopter on standby at St. John’s at any time when flights for workers are being undertaken. The effective “wheels up” time for such a SAR helicopter must be 15 – 20 minutes, consistent with practices in other offshore oil and gas jurisdictions. At times when worker transportation is not being undertaken a “wheels up” time of 45 minutes is acceptable. We agree with the Commissioner that the full-time dedicated and fully equipped response helicopter must be equipped with technology to locate and retrieve personnel from the water in all low visibility circumstances (auto-hover and forward-looking infrared radar) as soon as practicable. We expect you collectively or individually to advise as soon as possible how you will effect this service, certainly advising us not later than February 19, 2010, of your plans for earliest implementation.

In revisiting the acceptability of night flying, the Board recognizes that effective first response SAR cannot be delivered in conditions of impaired visibility until the dedicated and fully equipped SAR helicopter described above is available. That being the case, effective February 14, 2010, except for emergency circumstances, helicopter transportation to the offshore facilities will not be permitted to start or finish between dusk and dawn (or in any low visibility conditions where rescue cannot be effected without auto-hover) until such time as the First Response SAR provided by industry is properly equipped to effect personnel retrieval from water in these conditions.

Following the release of the Phase I Report and Recommendations, the C-NLOPB provided the following response in relation to Inquiry Recommendation 12, that night flights be banned:

The Commissioner’s recommendation on banning night flights is made on the basis that successful search and rescue during night is hampered by the unavailability of a properly equipped dedicated SAR helicopter. The Board accepts this rationale, and therefore is continuing the ban on night flying, except for medical emergencies. However, the Board has also directed

operators to improve their first response capability, and they have acquired a dedicated SAR helicopter equipped with forward-looking infrared (FLIR) and night vision. The required auto-hover is still in the certification process with the US Federal Aviation Authority and Transport Canada. When the auto-hover is certified, the Board will revisit the decision to ban all night flights.

Personal Protective Equipment

Since the return to flight in May 2009, all operators in the Newfoundland and Labrador Offshore have been using new suit fitting criteria to ensure proper fit of the Passenger Transportation Suit Systems.

Helly Hanson has developed and had approved the new HTS-1 PTSS for use in the Newfoundland and Labrador Offshore to address sizing issues.

Since May 2009, all persons traveling to and from offshore installations in the Newfoundland and Labrador offshore are required to be trained on and equipped with underwater breathing apparatus.

The C-NLOPB is actively engaged, along with other stakeholders, in the review of the certification of the Passenger Transportation Suit Systems through the CGSB. A staff member from the C-NLOPB participates in this process and the Board has provided the necessary funding for research, testing and development.

Emergency Floatation

S-92 Helicopters currently in use in the Newfoundland and Labrador Offshore are now equipped with a 5-bag floatation system designed to increase the likelihood of a ditched helicopter remaining upright.

Descent Profile

Cougar, in conjunction with Transport Canada, has developed a descent profile which allows for an S-92 to ditch within 11 minutes in the event of a main gear box malfunction.

SUMMARY

Phase I of the Canada-Newfoundland and Labrador Offshore Helicopter Safety Inquiry resulted in 29 recommendations to the Board. The Board has established a dedicated team led by two highly qualified safety and aviation experts and comprised of Board

staff, worker representatives, operator representatives, and a representative from Cougar, to review the Inquiry Recommendations and provide analysis and implementation recommendations to the Board.

The Inquiry Recommendations are comprehensive. The report of the TSB into the crash of Cougar flight 491 did not identify any new issue within the mandate of the C-NLOPB not already covered by the Inquiry Recommendations.

All of which is respectfully submitted.

AMY M. CROSBIE
Curtis, Dawe
Solicitors for the C-NLOPB