

Submissions to the Canada-Newfoundland and
Labrador Offshore Safety Inquiry
Phase II

on behalf of Communications, Energy and
Paperworkers Union of Canada, Local 2121

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April 15th, 2011

Introduction

The mandate of the Commission, as amended on October 7th, 2010, provides in respect of Phase II:

Upon completion of the Transportation Safety Board of Canada investigation into Cougar Helicopter Sikorsky S-92A crash, the Commissioner shall undertake a review of the sections of the Report therefrom that deal with matters which are specifically within the mandate of the CNLOPB and particularly the findings in respect thereof and shall advise the CNLOPB:

- (a) which findings should result in actions being recommended to be undertaken by CNLOPB and how they should be implemented;
- (b) which findings should result in actions being recommended to be undertaken by other legislative or regulatory agencies.

The Commissioner may retain and, as needed, request the services of independent specialists whose function would be to provide information on or interpret information and issues relative to the Inquiry. Independent specialists retained by the Commissioner may be requested by the Commissioner to appear before the Commissioner as experts.®

This mandate is subject to the limitation contained in Section 6 of the Terms of Reference which state, in part, as follows:

The Commissioner's mandate does not include an examination of any issues related to the airworthiness of aircraft, training of flight crew, or flight procedures or any other matters which are included in the Transportation Safety Board of Canada investigation into Cougar Helicopter Sikorsky S-92A crash except to the extent specifically described in Paragraph 5 hereof.®

Paragraph 5, on the other hand, provides:

Specifically, the Commissioner shall inquire into, report on and make recommendations in respect of:

- (d) safety plan requirements for operators in ensuring that their safety plans, as represented to and approved by the Board, are maintained by helicopter operators.®

CEP, Local 2121 understands that the CNLOPB has the authority, in respect of operators' safety plans, to require the operators to impose contractual obligations, on

helicopter operators providing services to the operators, which are in excess of the requirements of Transport Canada. An example of this sort of obligation imposed by CNLOPB on the offshore operators is the current requirement that passengers be trained to use and be issued the HUEBA. CEP, Local 2121 takes the limitation imposed in Section 6 of the Terms of Reference to mean, for instance, that it would be inappropriate for the Commissioner to inquire into the standards flight training for helicopter pilots or the content of simulator training, but it would not be inappropriate for the Commissioner to consider whether helicopter pilots ought to have extra knowledge where that knowledge is relevant to the safety of the passengers who are workers being transported to offshore installations in the Newfoundland and Labrador Offshore.

Simply put, CEP, Local 2121 feels it is appropriate for this Commission to make recommendations to the Regulator whereby the Regulator will be advised to alter the content of the contractual relationship between helicopter operators and offshore installation operators so as to make the helicopter transportation of workers in the Newfoundland and Labrador Offshore safer than that which would arise from compliance with the minimum standards set by Transport Canada.

Information Disclosure

In its Phase I Report, the Inquiry recommended as follows:

AIt is recommended that information about airworthiness directives and incident reports should be promptly communicated to the workers/passengers by notices posted on the website of the helicopter operator(s), so that those who want the information may have access to it. Alert Service Bulletins are not included in this recommendation because they are usually maintenance related. The actual protocol, including the details of the information to be posted, should be developed by the Regulator, in conjunction with the oil operators, the helicopter operator(s), and worker representatives.@

The Transportation Safety Board Report indicates that on October 8th, 2008, Sikorsky Helicopters issued Safety Advisory (SA)SSA-S92-08-007 to advise operators of upcoming changes to the AAM, which included an interim enhanced inspection procedure for the removal and installation of the main gearbox filter bowl assembly. These procedures included an enhanced visual examination of the studs, checking run off and run on torques, and mandatory replacement of used nuts with new nuts. On November 5th, 2008, with AMM Revision 13, these enhanced inspection procedures became mandatory industry wide. On January 28th, 2009, Sikorsky issued Alert Service Bulletin (ASB)92-63-014 requiring the replacement of the main gearbox filter bowl

titanium mounting studs with steel studs, within 1,250 flight hours or one year. Inspections had been mandatory since the release of AMM Revision 13 and both Sikorsky and the FAA felt the immediate risk of reoccurrence (stud failure) had been adequately mitigated and would allow safe operation during the specified compliance period.

Reference: Transportation Safety Board Report, Section 1.18.3.7

During the period between the release of Revision 13 of the Aircraft Maintenance Manual and March 23rd, 2009, none of the S-92A operators reported to Sikorsky that they had found any damaged studs while performing the enhanced inspection nor had they contacted Sikorsky to comment on the steps involved with the enhanced procedures. On March 23rd, 2009, the FFA issued Emergency AD2009-07-53 for Sikorsky S-92 helicopters which required, before flight, removing all titanium studs that attach the main gearbox filter bowl assembly to the main gearbox and replacing them with steel studs. Sikorsky did not receive any reports of damaged studs between issuance of AMM Revision 13 in November, 2008 and when AD2009-07-53 was issued in March, 2009. However, it did receive 59 studs from various operators after they had complied with the AD. Sikorsky examined these studs and found that they had varying degrees of galling of the threads, indicating multiple nut removals. Some of the thread damage was visible without the use of magnification. Considering the timing of AMM Revision 13 on November 5th, 2008 and the issuing of AD2009-07-53 on the 23rd of March, 2009 and the average S-92A utilization times, the studs received by Sikorsky would have come from helicopters that had their filter bowls removed at least three times.

Reference: Transportation Safety Board Report, Section 1.18.3.10

In its findings as to causes and contributing factors, the Transportation Safety Board found:

ACougar Helicopters did not effectively implement the mandatory maintenance procedures in Aircraft Maintenance Manual (AMM) Revision 13 and, therefore, damaged studs on the filter bowl assembly were not detected or replaced.@

Reference: Transportation Safety Board Report, Section 3.15

The Transportation Safety Board found that there appeared to be a general consensus amongst the S-92A community that the issue respecting maintenance of the main gearbox filter bowl assembly was not urgent.

Reference: Transportation Safety Board Report, Paragraph 1.18.3.9

It is quite clear that the issue was in fact entirely urgent. The maintenance procedure was determined by the manufacturer and, with the sanction of the Federal Aviation Administration, to be mandatory. The premise of Recommendation 7, Phase I for the exclusion of Alert Service Bulletins was that they were maintenance related. It is submitted that the findings of the Transportation Safety Board suggest that this is not a sound basis for exclusion of these items from an obligation to post information on the website.

The posting of these items on the website performs two functions. Firstly, it satisfies the right of passengers to know that matters crucial to their safety are extant. Secondly, the posting of the matter for public disclosure elevates the importance of the issue in the mind of the helicopter operator and its employees. Good management and human nature respond to the principle that it is easier to do something required than to explain why it has not been done. Elevation of the disclosure obligation to include air safety advisories and Alert Service Bulletins will reinforce that behaviour.

It is submitted that the Commissioner ought to recommend that Recommendation 7 in Phase I be amended so as to require immediate posting on the helicopter operator=s website of all safety advisories and Alert Service Bulletins.

Operational Restrictions on Flights

Recommendation 9 arising from Phase I of the Inquiry recommended as follows:

Alt is recommended that operation requirements, in addition to those of Transport Canada, specifically those relating to items such as operational sea states and visibility, be set by the Regulators as goal oriented objectives to which the oil operators will respond. Approaches to meeting selected goals should be widely discussed by the Regulator, oil operators, helicopter operator(s), worker representatives, stake holders and experts engaged by any of the parties.@

The Transportation Safety Board Report recommended:

ATransport Canada prohibit operation of Category A transport helicopters over water when sea state will not permit safe ditching and successful evacuation.@

Reference: Transportation Safety Board Report, Section 4.2.2

The Transportation Safety Board found that the S-92A was certified to accomplish ditching in accordance with FAR29.801 which provided for stability in a sea state 4 established by the World Meteorological Organization. The Transportation Safety Board found that sea state 4 was exceeded approximately 50% of the time throughout the year and 83% of the time during the December through February period in the Newfoundland and Labrador Offshore. Sea state 6, on the other hand, is exceeded only 3% in the year or 8.9% of the time during the December through February period. The oil operators have caused flights to cease because of this TSB recommendation. It is not apparent that the five bag option for emergency flotation used in the North Sea, which achieves stability in a sea state 6 on the JONSWAP standard, is equivalent to a World Meteorological Organization sea state 6.

Referring to work done by the UK Civil Aviation Authority, the Transportation Safety Board noted the finding that reasonably probable water conditions for ditching equipment certification should be amended to take into account regional climatic and sea conditions. Specifically, in a non-hostile environment, emergency flotation equipment based on sea state 4 was appropriate. However, in a hostile environment, a higher standard of sea state should be required for ditching equipment certification.

Reference: Transportation Safety Board Report, Section 1.18.4.2

Five bag kits for the emergency flotation system were installed on three of the S-92's operated by Cougar Helicopters at the time of the writing of the Transportation Safety Board Report and a fourth kit was ordered. These five bag kits are designed for and have been demonstrated in sea state 6 JONSWAP conditions. JONSWAP recognizes a steeper wave profile than a WMO scale, which is more typical of the wind waves encountered in the North Sea.

Reference: Transportation Safety Board Report, Section 1.6.6

It should not be assumed that the sea state 6 JONSWAP system is automatically transferable to the Newfoundland and Labrador Offshore. If helicopters are going to fly in conditions such that sea state 6 WMO exists, an appropriate certification process should be first undertaken so as to determine that such helicopters will, in fact, be stable in sea state 6 in the Newfoundland and Labrador Offshore. Further, the sea state for the certification obtained must be the operational limit.

The Commissioner should recommend to the Regulator that helicopters be subject to operational requirements which require certification of the stability of the aircraft in any

sea state in which it flies over water such that safe ditching and successful evacuation can be achieved and that such sea state will then be the operational limit.

EFS Integrity

The Transportation Safety Board found that the gaslines and electrical wiring necessary for the operation of the emergency flotation system were severed at multiple locations as a result of the crash CH191. As well, the immersion switches in the wheel wells were disabled when the sponsons were torn away by the impact. The right float had multiple tears and punctures likely due to the impact or the subsequent recovery or movement of the wreckage. The left float, on the other hand, remained in its protective cover. It was subsequently inflated by the Transportation Safety Board in both cells held pressure. The two inflators for four floats were found undamaged and fully charged. The aft float and associated inflators were not recovered. Both of the life rafts with which the aircraft was equipped were recovered fully inflated and floating near the impact site.

Reference: Transportation Safety Board Report, Section 1.12.7

The Transportation Safety Board found that it is standard practice for helicopter EFS to be powered from the helicopter's emergency bus or directly from the main battery. In some instances, the water impact flotation systems have failed to activate because the necessary electrical power to fire the pyrotechnic devices (squibs) on the gas supply was disrupted. As a result, the gas is unable to inflate the flotation bags. An independent power supply to activate a flotation system following a crash landing on water has been designed and certified to compliment current electrical supply systems. This is a small, low mass device designed to be installed a short distance from the squibs, limiting the potential for power loss due to wiring harness damage

Reference: Transportation Safety Board Report, Section 1.18.4.5

The Transportation Safety Board found that the S-92A's EPS is manufactured by GKN Aerospace. In February, 2008, GKN Aerospace announced that it had developed a direct inflation EFS that utilized cool gas generator technology. CGG units store gas as an uncompressed solid material in small, lightweight, rugged units instead of large pressure vessels currently installed in the S-92A. The CGG unit releases a sufficient amount of gas at ambient temperature, through a controlled reaction, to inflate the EFS bags. These small units mounted adjacent to the EFS bags replace the traditional heavy pressure vessels and greatly reduce the length of gas supply line needed. CGG units were

evaluated for the S-92A EFS design; however Sikorsky determined that they were not sufficiently developed to meet S-92A certification requirements.

Reference: Transportation Safety Board Report, Section 1.18.4.6

The Transportation Safety Report indicates on the basis of the Medical Examiner=s investigation that while they suffered significant lower body injuries, all the occupants who remained in the wreckage died of drowning. In short, while severely injured, they survived the catastrophic impact. The EFS did not; it is apparent from the findings of the Transportation Safety Board that it is only designed to withstand ditching. In Risk Finding No. 24, the Transportation Safety Board found if helicopter EFS systems are only designed to withstand the forces associated with a ditching, there is a continued risk that these systems will be disabled in survivable impacts contributing to occupant deaths from the drowning.

Reference: Transportation Safety Board Report, Section 1.3.3 and Section 3.2 No. 24

The Transportation Safety Board has indicated that some other modern helicopters have EFS designed to withstand being deployed in flight at speeds up to 120 knots and withstand water landing speeds up to 30 knots. The rate of descent for CH191, at impact, was determined by the Transportation Safety Board Engineering Laboratory to be somewhat less than 5,100 feet per minute but much higher than 2,300 feet per minute.

Reference: Transportation Safety Board Report, Section 1.11.3

It is likely then that the rate of descent was greater than 30 knots (3,000 feet per minute). It is equally apparent that a survivable impact could occur in circumstances which would not be considered a controlled ditching at a descent rate which would not destroy some existing EFS technology. This Inquiry is not about what one does with an existing fleet of S-92A helicopters. The mandate of this Inquiry is to inquire into conditions of safety affecting workers in the Offshore of the Province of Newfoundland and Labrador as it pertains to helicopter transportation. The CNLOPB or a new Regulator has the authority to require in the safety plans of operators conditions for safety beyond those required by other Regulators. We submit that the Commissioner should recommend to the Regulator to establish requirements to be implemented not later than 24 months from the publishing of the Phase II Recommendations of the Commissioner for the following:

- (a) Helicopters providing transportation for persons travelling to installations in the Newfoundland and Labrador Offshore should be equipped with emergency

flotation systems able to withstand impacts significantly greater than the force of a controlled ditching.

- (b) That the emergency flotation systems should be able to be activated and inflated without dependence upon the helicopter=s electrical system and that any gaslines should be of the shortest possible distance from the emergency flotation system.

Helicopter Fleet Size

The wisdom of Recommendation No. 9 in the Phase I Report of the Inquiry has been validated by the findings of the Transportation Safety Board. Compliance with these recommendations from the Transportation Safety Board and from the Inquiry itself will limit the opportunities for flights. There is no doubt that this will lead to increased pressure for flights when sea states permit.

It is apparent from the Transportation Safety Board Report that there is a concentration of extreme sea states by this time of the year. Evidence in Phase I suggested that visibility problems caused by fog were considerably more common in the summer months.

Reference: Transportation Safety Board Report, Section 1.18.4.2

CEP, Local 2121 is concerned that night flights are seen as an alternative to reduce the pressure for flights when sea state conditions or visibility conditions limit opportunities for flights. There seems to be a failure to recognize that losses from helicopter crashes dramatically increase when a ditching or crash occurs at night. This is not only because of the limitations put on Search and Rescue by lack of visibility at night time, (a matter addressed by the Commission=s recommendation that the standby Search and Rescue helicopter be equipped with forward looking infra red radar and autohover capability), but also because the process of controlled ditching is extremely difficult without visual reference to the water=s surface.

When the Commission made its interim recommendation on SAR response time, Cougar Helicopters was able to augment its helicopter fleet. Augmenting the helicopter fleet provides an opportunity to undertake flights to the installations at a higher rate in windows of opportunity when operational limitations on the ability to fly prevail. Evidence given by the operators in Phase I suggested that persons being on the installations for too long a period poses a safety risk in itself. Pressure to fly is a safety consideration. We submit that the Inquiry should recommend that installation operators require, as part of their safety plan, that the Helicopter Transportation Operator be able to

augment its fleet during periods of the year when operational restrictions limit flight time availability.

BST

The Transportation Safety Board found that current BST standards in Canada lack clearly defined, realistic training standards and equipment requirements. This could lead to differences in the quality of training and probability of occupant survival following a crash at sea. In particular, the current standard lacks guidance to the individual providers on course duration, instructor competency, course completion requirements and level of realism that should be included in their programs.

Reference: Transportation Safety Board Report, Section 2.7.2

The Transportation Safety Board also focussed on the value of repetition of exercises during training. Increased exposure during each recurrent training session (ie. saturation training) would help participants retain the required knowledge and skills during the intervening period. Repetition also helps make procedures more automatic and reduces the time required to escape.

Reference: Transportation Safety Board Report, Section 2.7.2

A higher level of frequency and greater intensity for BST training is not necessarily a popular thing. BST is, for many individuals, a highly anxiety provoking experience. Nevertheless, the findings of the Transportation Safety Board cannot be ignored in the interests of the potential survival of individuals obliged to escape from a ditched/crashed helicopter. We submit that the Inquiry should recommend to the Regulator that the BST training include a greater level of repetitions of the HUET exercises than is presently the case. Further, the Inquiry should recommend to the Regulator that it act with other Canadian Regulators industry and worker representatives to provide clearly defined realistic training standards and equipment requirements for Basic Survival Training.

Flight Crew Safety Equipment and BST

The Transportation Safety Board made a number of observations respecting the flight crew which reflect significantly upon the safety of passengers. The Transportation Safety Board has found that BST is not mandatory for flight crew and, occasionally, some flight crew are only completing a one day HUET training session every three years. In this, training flight crew are not required to egress from one of the pilot=s seats. The Transportation Safety Board observed:

Alf flight crew are not familiar and confident in their chances of escaping an inverted submerged helicopter, they could be influenced in their decision to ditch.@

Reference: Transportation Safety Board Report, Section 2.7.2

The Transportation Safety Board identified that flight crew are not required by regulation to wear an immersion suit. There are only minimal standards of regulations relating to the maintenance of the flight crew immersion suits like those worn by the pilots of Cougar Flight 491. Indeed, inspection of the flight crew suits shortly after the crash of Flight 491 showed that many of the suits were unserviceable. The minimal regulations or standards pertaining to offshore helicopter flight crew suits use and maintenance increases the risk that flight crews will be inadequately protected following a ditching or crash at sea.

Reference: Transportation Safety Board Report, Section 2.7.5

The pilots of Flight 491 were wearing Viking PS4177 dry suits. There is no inherent buoyancy provided by the Viking PS4177 nor does it provide thermal protection. Buoyancy is provided by a separate flotation vest and thermal protection is provided by undergarments. The Viking PS4177 has not been tested nor is it required to be tested through the PTSS standards set out by the Canadian General Standards Board. It is submitted that the air crew cannot rely upon their immersion suits to provide the same protection as the passengers= immersion suits. This, too, may influence the decision to ditch.

The Transportation Safety Board found that no helmet use policy was in place at Cougar Helicopters at the time of the crash of Flight 491 and helicopter pilots were under no regulatory requirement to wear head protection. Only 10% of the Cougar Helicopter pilots were routinely wearing head protection. The TSB found that U.S. military research indicated that the risk of fatal head injuries can be as high as six times greater for helicopter occupants not wearing head protection. In addition, the second more frequently injured body region in survivable crashes is the head. The effects of non-fatal head injuries range from momentary confusion and inability to concentrate to a full loss of consciousness. Incapacitation can compromise a pilot=s ability to quickly escape from a helicopter and assist passengers in an emergency evacuation/survival situation.

Reference: Transportation Safety Board Report, Section 1.15.14

Although Transport Canada has acknowledged the benefit of head protection use and has committed to promoting the use of helmets by helicopter pilots, it remains optional behaviour and the majority of helicopter pilots continue to fly without head protection.

Reference: Transportation Safety Board Report, Section 1.15.14

These issues are not simply issues of pilot safety. They are equally issues of passenger safety. It is clear that in the interest of passengers, pilots should have the same level of confidence in their safety equipment and their ability to successfully exit a submerging or submerged helicopter as any other passenger. The findings of the Transportation Safety Board make it clear that there is a marked potential for aircrew to be at higher risk from a ditching than other passengers. The Transportation Safety Board conclusion that lack of confidence in safety equipment may affect a decision to ditch is a very valid and real concern. We submit that the Inquiry should recommend to the Regulator:

That operator safety plans include a provision which requires, as a matter of contract between the installation operators and helicopter operators,

- (a) That the emergence suit supplied to air crew be subject to the same certification standards as the PTSS;
- (b) That aircrew have, at a minimum, the basic survival training as passengers flying offshore in Newfoundland and Labrador, with the proviso that such training must include HUET training which includes exercises in exiting the pilot's seat of the helicopter;
- (c) That crew operating for helicopter operators contracted to the oil operators be required to wear head protection while operating helicopters carrying passengers.

Run Dry Time

The S-92A was tested on August 6th, 2002 to demonstrate that the S-92A transmission could provide continued safe operation for a minimum of 30 minutes following a complete loss of lubricating oil in accordance with the requirements of FAR29.927(C)(1). The main gearbox of the S-92A suffered a catastrophic failure about 11 minutes after the test was started.

Reference: Transportation Safety Board Report, Section 1.18.5.2

The S-92A was certified, notwithstanding this failure, on the basis of a modification allowing for bypass of the main gearbox external air cooler system and the assertion that all other causes for a massive gearbox lubrication failure were extremely remote.

Reference: Transportation Safety Board Report, Section 1.18.5.4

At the time of the S-92A certification, the FAA has certified only one helicopter, the McDonald Douglas Helicopters MD900, to a 30 minute dry run standard. The European Air Safety Authority had, on the other hand, tested and certified at least four helicopters using the 30 minute run dry criterion.

Reference: Transportation Safety Board Report, Section 1.18.5.1 and Section 1.18.5.4

In Risk Finding No. 2, the Transportation Safety Board found that in distant offshore operations, including the East Coast of Canada, a 30 minute run dry main gearbox capability may not be sufficient to optimize eventual landing opportunities.

Reference: Transportation Safety Board Report, Section 3.2

The continued use of the S-92A in the Newfoundland and Labrador Offshore seems to suggest that the Newfoundland and Labrador Offshore should, as it did with search and rescue response time, the helicopter underwater emergency breathing apparatus and the three bag (as opposed to five bag) emergency flotation system, be satisfied with less than the best international practices. As previously stated, the issue is not what is to be done with an existing fleet of S-92A=s. The issue is what are the appropriate steps to ensure worker safety in helicopter transportation in the Newfoundland and Labrador Offshore. There is no logical reason why workers in the Newfoundland and Labrador Offshore should have less than the best available safety capacity in the helicopters which they must ride to their work. The Newfoundland and Labrador Offshore is arguably an even more hostile environment than the North Sea. Thirty minutes of flying time is invaluable in terms of assessing the problems with a helicopter which has suffered a loss of main gearbox oil. In an emergency, time is everything. Run dry time of a helicopter being extended to the maximum available time is, in essence, no different than the requirement that search and rescue response be reduced to the minimum possible time. It is simply about preserving life in a life threatening situation. We submit that the Inquiry should recommend to the Regulator that it be a condition of the Oil Operator Safety Plan that the contract for helicopter operations provide a condition that the helicopter used for transportation of workers to and from installations in the Newfoundland and Labrador Offshore have a run dry capability equal to the maximum available in a helicopter at the

time such contract is made and that no such contract should be for a period of greater than five years.

Audit Effectiveness

The Transportation Safety Board made a number of findings with respect to the behaviour of Cougar Helicopters and Sikorsky Helicopters which are troubling. The findings referencing Cougar Helicopters are listed below:

- (a) The pilot checklist utilized by Cougar Helicopters exhibited a lack of established standards for landing guidance definitions used in abnormal and emergency situations which leaves definitions open to interpretation.

Reference: Transportation Safety Board Report, Section 1.18.1.2

- (b) The Cougar Helicopter S-92A Pilot Checklist had not been updated by Cougar Helicopters to include changes associated with two revisions of the Rotorcraft Flight Manual. These involve significant changes bearing upon actions and indications in the circumstances of a loss of main gearbox lubrication.

Reference: Transportation Safety Board Report, Section 1.18.1.8

- (c) Cougar Helicopters= Standard Operating Procedures likewise contain significant differences in respect of the procedures in the event of a main gearbox malfunction when compared to the current version of the Rotorcraft Flight Manual.

Reference: Transportation Safety Board Report, Section 1.18.1.7

- (d) Cougar Helicopters did not implement the Sikorsky Safety Advisory issued in October, 2008 nor did it implement the revisions in the Aircraft Maintenance Manual provided by AMM Revision 13, which was issued in November of 2008. The Safety Advisory and Revision to the Maintenance Manual were in respect of a requirement for an enhanced inspection of the oil filter mounting studs, run on and run off torque and replacement of nuts on the oil filter mounting studs with each change of the oil filter.

Reference: Transportation Safety Board Report, Section 1.18.3.9 and Section 1.18.3.10

- (e) Cougar Helicopters did not specifically assess the operational risk associated with flying the S-92A in the Newfoundland and Labrador Offshore as this helicopter was promoted as meeting the most stringent safety standards and certified by the FAA and JAA.

Reference: Transportation Safety Board Report, Section 1.17.2.2

The findings with respect to Sikorsky reflect upon the Flight Manual provided for the S-92A by Sikorsky Helicopters. They are as follows:

- (a) lack of specific guidance and/or recommendations in the Rotorcraft Flight Manual pertaining to the optimum airspeed and torque settings used in the event of a loss of main gearbox oil which could result in selection of a flight profile that accelerates catastrophic failure of a gearbox that has lost oil.

Reference: Transportation Safety Board Report, Section 1.18.1.3

- (b) Sikorsky Helicopters did not clearly identify in the Rotorcraft Flight Manual for the S-92A critical performance capabilities such as run dry time and this increased the risk of pilots making decisions on incomplete or inaccurate information during abnormal and emergency situations.

Cougar Helicopters is arguably one of the most intensely supervised helicopter operations in Canada, if not in the world. Cougar Helicopters was audited 16 times by external bodies between 2007 and the crash of Flight 491. It is subject to supervision by the oil operators CNLOPB and Transport Canada. All have conducted audits of one type or another in respect of Cougar's operations.

Reference: Transportation Safety Board Report, Section 1.17.2.5

The role of a safety audit is to ensure that within an organization procedures exist to maintain safety and ensure that the behaviours of the people who make up the organization are supportive and consistent with the procedures. The Transportation Safety Board found that despite Cougar Helicopters' commitment to safety management systems, some additional risks associated with its operation went undetected prior to this occurrence, including flight crew immersion suit maintenance, MGB inspection procedures, CRM training, checklist revision practices and emergency procedures training conducted during annual and recurrent simulator training.

Reference: Transportation Safety Board Report, Section 2.8

In Volume I of the Phase I Inquiry Report at Page 52, the Commissioner observed:

AThe oil and helicopter operators are very aware of the consequences of the failure of safety from whatever source it comes and strive to keep their operations accident free. The net result is that all four have good risk management systems.@

The foregoing statement is frankly challenged by the findings of the Transportation Safety Board. The internal procedures of Cougar Helicopters were, at the time of Phase I of this Inquiry, matters appropriately dealt with by the Transportation Safety Board. As a consequence, while sample audits were presented as exhibits in Phase I, the manner of undertaking such audits and the findings of such audits were left largely unexplored. Indeed, most were redacted. Reviewing the audits and Exhibits 192 and 194 discloses, for instance, that the auditors did not review maintenance records nor did they check the checklists and Standard Operating Procedures against the Rotorcraft Flight Manual. Likewise, no check was done to determine if the Rotorcraft Flight Manual was up-to-date. It is submitted that one would have expected such an intensive audit process to have identified deficiencies in some of the behaviours and procedures found to be lacking by the Transportation Safety Board. It appears then that there may be an issue with the audit standards or methodology. We submit that Phase II should include an inquiry by the Commissioner which will review the audit standards applied to the operations of Cougar Helicopters by the Regulator and the oil operators with a view to determining whether it is necessary to develop a new and more appropriate audit standard. We further submit that if the Commissioner is not prepared to undertake such further inquiries, that the Commissioner should recommend to the Regulator that it undertake a review of the audit standards applied by the Regulator and the installation operators with respect to the operations of Cougar Helicopters so as to develop a new and more effective audit standard.

Safety Management and Crew Resource Management

Cougar Helicopters is what is known as a 704 operation and, as a consequence, is not required to have a safety management system. Although Cougar Helicopters is in the process of implementing a safety management system, it has not been assessed by Transport Canada.

Reference: Transportation Safety Board Report, Section 1.17.2.1

Similarly the current regulations only require CAR705 operators to conduct crew resource management training. While Cougar Helicopters provided some crew resource management training, the investigation by the Transportation Safety Board determined that this voluntary training may not incorporate the most modern CRM concepts.

Reference: Transportation Safety Board Report, Section 2.6.1

In fact, the Transportation Safety Board found in respect of the crash of Flight 491 that as soon as the crew was alerted to the main gearbox oil pressure problem, the division of crew duties deviated from accepted crew resource management best practices. The Transportation Safety Board additionally found that Cougar Helicopters had been in the process of implementing modern safety management concepts into its operations for several years. Its program was still not fully implemented and all proactive elements were not yet being utilized effectively. It is likely that an operator with a full and mature safety management system would have identified the need to apply hazard identification and risk management processes to all aspects to the introduction of a new helicopter, like the S-92, into its operation. In this case, Cougar Helicopters believed that the manufacturer=s and Regulator=s own safety processes have mitigated all potential risks. Despite Cougar Helicopters= commitment to SMS, some additional risks associated with its operation were undetected prior to the crash of Cougar Flight 491, including flight crew immersion suit maintenance, MGB inspection procedures, CRM training, checklist revision practices and emergency procedures training conducted during annual and recurrent simulator training.

Reference: Transportation Safety Board Report, Section 2.6.3.1 and Section 2.8

It is hard to conceive of any valid reason that the level of attention to safety and, in particular, matters of safety like crew resource management, should be any different for a passenger travelling to one of the offshore oil production installations than for that same passenger if he or she boards an Air Canada flight at the same airport. This, however, is the effective result of limiting the current regulatory environment respecting safety management systems and crew resource management training to CAR705 operators. It is entirely appropriate for the Regulator in the Newfoundland and Labrador Offshore to require that offshore installation operators contracting with helicopter operators for the transportation of their employees contractually provide that the standards employed by such helicopter operators for safety management systems and crew resource management training be the same as are applicable to a CAR705 operator. CEP, Local 2121 requests that the Inquiry so recommend.

Emergency Locator Transmitters

The Transportation Safety Board identified an issue with respect to the emergency locator transmitter on Cougar Flight 491. In common with emergency locator transmitters used on other aircraft, this transmitter did not activate until 50 seconds after the helicopter crashed. This is not a matter of defect in the equipment but is a matter of design. In the circumstances of a helicopter crashing into the water or ditching but not maintaining flotation, the consequence of this design feature is that the emergency locator transmitter will activate when the helicopter is already submerged thereby rendering the signal pointless. The Transportation Safety Board has identified this circumstance as a risk.

Reference: Transportation Safety Board Report, Section 2.7.9.4 and Section 3.2, No. 25

We submit that this is a classic case of the circumstance where the general Regulations of Transport Canada are not adequate for the particular circumstances of helicopter transportation to and from offshore installations in the Newfoundland and Labrador Offshore. CEP, Local 2121 therefore requests that the Inquiry recommend to Transport Canada that helicopters in the Newfoundland and Labrador Offshore be equipped with emergency locator transmitters which are activated immediately upon ditching or crash of the helicopter into water. We further request that the Regulator of the Newfoundland and Labrador Offshore oil industry require the operators of the offshore installations to include in their contracts with helicopter operators providing transportation for their employees to and from such installations, a provision which requires that such helicopters be equipped with an emergency locator transmitter which is activated immediately upon ditching or crash of the helicopter into water.

Personal Locator Beacons

The Transportation Safety Board found that the personal locator beacons carried by passengers on Flight 491 did not transmit on the 406 megahertz band. The PLB=s were transmitting on the 121.5 megahertz band, which is designed for man overboard use. Due to recent changes, the COSPAS-SARSAT satellite system no longer received the 121.5 megahertz frequency. The Transportation Safety Board found selection of an inappropriate PLB type for helicopter transportation could result in delays locating a person floating in the ocean.

Reference: Transportation Safety Board Report, Section 2.7.6

There are unquestionably some advantages in the 121.5 megahertz frequency when dealing with a man overboard situation. However, it is apparent from the crash of

Cougar Flight 491 that the first response for Search and Rescue must be by helicopter. Search and Rescue helicopters use the 406 megahertz signal to locate persons in the water.

The personal locator beacons used by the passengers on Flight 491 were designed to withstand submersion to a depth of one metre. No signal on the 121.5 megahertz frequency was found by any of the responders. All of the recovered PLB=s had contamination due to salt water ingress. Additionally, numbers of them exhibited serious maintenance issues. It is apparent that PLB=s used at the time of the crash of Cougar Flight 491 are of little use for passengers escaping from a submerged or submerging helicopter. The importance of PLB=s cannot be underestimated. In conditions of low visibility, they can be a very significant aid to location of an individual in the water. Visibility of an individual in the water in seas approaching sea state 6 would be challenging to say the least. It is therefore crucial that such individuals be equipped with functioning personal locator beacons.

Reference: Transportation Safety Board Report, Section 1.15.12

The Transportation Safety Board identified that neither Transport Canada nor the Offshore Regulator require passengers on helicopters transporting employees to and from offshore installations to carry personal locator beacons. This is an oversight which must be cured. CEP, Local 2121 submits on the basis of the above that the Inquiry should recommend to the CNLOPB that offshore installation operators be required to provide in their contracts with helicopter operators that all passengers and crew on flights to and from the offshore installations be issued personal locator beacons which are able to withstand immersion to a depth of 50 metres and which are able to transmit, in addition to any other frequency on the 406 megahertz frequency. CEP, Local 2121 further submits that the offshore regulators should require the offshore installation operators, as a matter of contract with any helicopter operator, to maintain such PLB=s in good working order at all times.

Worker Representation

There is an additional matter which CEP, Local 2121 wishes to raise with the Offshore Helicopter Safety Inquiry. Recommendations from Phase I appropriately made reference to worker representatives being involved in various stages of the Recommendations made and, indeed, in their implementation. When the CNLOPB announced its process for implementation of the Phase I Recommendations, CEP, Local 2121 contacted the CNLOPB seeking to put forward worker representatives. The response from Max

Ruelokke, on behalf of the CNLOPB of which he is Chair, was, inter alia, Awe will ask the offshore operators to nominate the appropriate individuals. The operators are the only organizations with whom we have formal relationships, so we have an obligation to proceed in this way.®

It is apparent that the offshore regulator does not recognize that which it accepted in evidence before Phase I; it is the custodian of the occupational health and safety rights of workers in the offshore. As matters currently exist, worker representatives are actually individuals appointed by the offshore operators. Even the one individual on the CNLOPB Offshore Helicopter Safety Implementation Team, who has had involvement with the union, was appointed by the operator. It is respectfully submitted that any organization that thinks that worker representatives are appointed by the employer simply has it all wrong. Worker representatives ought to be selected by the employees and, where there is a certified bargaining agent in place, that bargaining agent should manage the mechanism by which such worker representatives are chosen. Similarly, it must be made clear that worker representatives engaged in safety matters are performing the work of their employer and are to be paid by the employer for such work. We would ask the Commissioner to clarify the intent of the Phase I Recommendations so that we will not have the current situation where there is an Offshore Helicopter Safety Implementation Team with all worker representatives appointed by the operators and where one of such worker representatives is, in fact, a supervisor.

Dated at St. John=s, NL this 15th day of April, 2011

**COMMUNICATIONS, ENERGY
AND PAPERWORKERS UNION,
Local 2121**

Per: _____
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