

Advice provided by the C-NLOPB's Offshore Helicopter Safety Inquiry (OHSI) Implementation Team to the C-NLOPB Board

## **Advising Document**

### **OHSI Phase I, Recommendations 13 & 14**

**Regarding training fidelity & physical fitness**



In November 2010, the Honourable Robert Wells, QC, submitted the Report for Phase I of the OHSI to the C-NLOPB, containing 29 recommendations for enhancing the safety of helicopter travel offshore. Each Advising Document contains the text of the recommendation for which the advice is offered.

The Team's advice for Recommendations 13 & 14 was accepted in principle by the C-NLOPB Board at their meeting on May 30, 2011. At that time, the C-NLOPB took responsibility for developing its strategy to implement these recommendations.

The OHSI Reports, other Advising Documents, C-NLOPB OHSI Action Plans, and more can be found on the C-NLOPB website: [http://www.cnlopb.nl.ca/ohsi\\_main.shtml](http://www.cnlopb.nl.ca/ohsi_main.shtml)

# Advice to the C-NLOPB: Recommendations 13 and 14

## Recommendations

**13:** It is recommended that safety-training goals be established by the Regulator in consultation with suppliers of personal protective equipment, trainers, oil operators, and worker representatives. HUET and HUEBA training are necessary, but should not be so rigorous as to impose safety risks. Training should be done with greater fidelity, which objective is already being pursued. Fidelity should encompass survival training in more realistic sea conditions than is currently the case. The Regulator, oil operators, worker representatives, and, as appropriate, other stakeholders should be involved in the discussions as to how training goals should be met.

**14:** It is recommended that the Regulator set goals for physical fitness of workers in preparation for safety training, after consultation with oil operators, worker representatives, trainers, and medical experts.

## Method

A working group of the C-NLOPB's OHSI Implementation Team reviewed the recommendations and information provided in the OHSI reports. A high-level hazard identification session was completed with members of the working group and representatives from the Cougar SAR Team. From the results of the session, the group identified the system safety deficiencies and developed an implementation plan. The working group subsequently reviewed the training and medical standards that are employed in various offshore oil jurisdictions and the East Coast offshore survival training facilities' programs.

The group drafted a performance goal document to address the recommendations. The document's aim is to establish minimum performance standards for physical capability and to improve training fidelity. The work group presented the information to the complete OHSI Implementation Team, and this then became the basis for the Team's proposed implementation strategy for the consideration of the C-NLOPB.

## System Safety Deficiencies (SSDs)

Training does not expose participants to the variety of conditions that may be encountered during a ditching.

The Regulator does not establish performance goals for the design and delivery of survival training, nor measure the results.

## Background

### Hazard Identification Session

## Advice to the C-NLOPB: Recommendations 13 and 14

In January 2011, the working group completed a hazard identification session addressing many of the Inquiry recommendations.

The session identified hazards associated with flight operations offshore and concentrated on a planned ditching on water with recovery via helicopter and supply vessel. The session identified existing safeguards that mitigate these hazards, as well as gaps that exist and potential methods to address them. 34 Deficiencies were noted, in the following categories:

- BST Training and Fidelity
- Survival/SAR Equipment and Procedures
- Pilot training
- Passenger Physical Fitness
- Communication of Information
- Environmental Conditions
- Flight Planning

Of the 34 deficiencies, 18 related to training and 6 related to passenger physical condition. Examples of deficiencies include the lack of a breathing apparatus in helicopter egress training activities, lack of helicopter flotation for helicopter egress training activities, and difficulty in passenger movement within the helicopter due to the auxiliary fuel tank. It was the opinion of the group that by addressing these deficiencies, passengers would be better prepared for a wider range of emergency scenarios, thereby increasing the likelihood of a successful ditching and egress from the aircraft if required.

Appendix A gives an overview of the hazard identification session results.

### Training Standards Review

The working group reviewed the following survival training standards: CAPP's "Standard Practice for the Training and Qualifications of Personnel" (TQSP) for Atlantic Canada, the UK's OPITO "Minimum Industry Safety Training Standard", Norway's OLF "Guidelines for Safety and Emergency Training", and the Netherlands' "NOGEPa Training Handbook". A summary of each is provided in Appendix B.

The TQSP was developed for the Atlantic Canada offshore industry by the CAPP Training and Qualifications Committee (TQC). The TQSP contains the topics that must be covered in a survival training course. Currently, the fidelity of training and learning objectives are decided by the training institute. This document is used by the Operators as a training guideline, and it is accepted by the C-NLOPB. This arrangement is similar to what is found in the UK, Norway, and the Netherlands.

Comparing the international training standards and the CAPP TQSP, it is evident that the TQSP encompasses a broader scope than the standards in the UK, Norway, and the Netherlands. The CAPP TQSP highlights safety training requirements for many offshore positions, while the aforementioned jurisdictions have standalone documentation for each one.

## Advice to the C-NLOPB: Recommendations 13 and 14

Training facilities can become accredited to the OLF, NOGEPa, and OPITO standards. The industry group responsible for the standard performs audits to ensure compliance with the training standard. This is considerably different from the approach that CAPP takes. The TQC states in the TQSP (p. xi) that “the Committee does not accredit or approve courses or training institutions or formally audit courses, but simply makes its best effort to monitor the quality of course delivery through the resources and participation of individual members.”

### Medical Standards Review

The medical standards for personnel traveling offshore in Atlantic Canada, the UK, Norway, and the Netherlands were reviewed. The standards are used to medically assess personnel before they begin offshore survival training and travel offshore for work. The requirements for the standards are similar as they provide an outline for examinations to include comprehensive, work-focused histories and physicals. The examination is intended to assess fitness for work offshore but is based on medical findings rather than physical ability.

Each standard includes an assessment form for the attending physician to complete. The forms include a statement on whether the person is “fit” to complete the survival training, based on the physician’s assessment.

In Canada, medical certificates are valid for up to 3 years; in the UK, Norway and the Netherlands, they are valid up to 2 years. The frequency of medicals in all jurisdictions is increased if personnel have existing medical conditions or when individuals reach certain ages (i.e., as they grow older). There is no regulated requirement for an individual to report changes in their medical conditions between medical assessments.

Only 2 of the 4 standards reviewed mention physical capabilities. The Netherlands medical standard states “large or obese passengers may find exit through the windows difficult” (NOGEPa, “Medical Aspects of Fitness for Work Offshore: Guidance for Examining Physicians”, p. 6). The medical standard in Norway requires that “mobility must be sufficient that the person in question can work in a safe manner and cope with an emergency situation and evacuation” (Norwegian Directorate of Health, “Regulations regarding health requirements for persons working on installations in petroleum activities offshore”, p. 6).

The group also reviewed the Transport Canada (TC) Seafarer Medical as a comparison of medical standards in other industries in Canada. Section 6.2 of the Seafarer Medical states requirements for mobility, agility, and strength. Personnel must be able-bodied and mobile in order to complete tasks on board a vessel and to perform their job effectively.

### Meeting – AOMS

A meeting was held with Dr. Ciaran O’Shea of Atlantic Offshore Medical Services (AOMS) to discuss his opinion on physical fitness and functionality for offshore travel, and the use of a Helicopter Underwater Emergency Breathing Apparatus (HUEBA) during HUET training.

## Advice to the C-NLOPB: Recommendations 13 and 14

Dr. O'Shea gave an overview of services provided by AOMS, highlighting the importance of competent and capable offshore medics; current level of healthcare offered to the offshore workforce from a primary and emergency health care perspective; supported by on-call emergency room physicians, in conjunction with family practitioners to ensure optimal health care in this environment.

In some instances, because of pre-existing medical conditions, pre-existing injury or illness, etc., or indeed in return to work scenarios, following injury or illness, it may be necessary to have some functional testing completed (e.g., fitness assessments which can give an accurate and scientific evaluation of base-line fitness) prior to going to work or returning to work. In such cases, the services of Occupational Therapists and other related specialists are utilized.

Regarding HUEBA use during HUET training, Dr. O'Shea is of the opinion that there is a small, but definite risk of injury through the means of lung overpressure and intra-arterial air/gas embolism when using compressed air. He pointed out that, although compressed air would likely be the best option in an emergency, it is not used in many other jurisdictions because of the risk.

### Meetings – Survival training facilities

Meetings were held with the Marine Institute (MI) and Survival Systems Training (SST) to discuss their training programs and quality assurance processes. Both facilities develop their training programs using guidance from the CAPP TQSP, and each has an internal system to audit the delivery of the training program and to monitor instructor qualifications. Certification requirements for their instructors must be maintained at all times.

The content of the BST and BST Recurrent (BST-R) courses was discussed. SST's training includes four inversion egresses by participants in the HUET in both the BST and BST-R courses. MI requires two inversion egresses for BST training, and one in BST-R. SST conducts immersions that require the participant to jettison an exit underwater, while MI does not. Both facilities offer to continue training an individual until the candidate has successfully completed an inverted egress, if the participant is willing to do so.

SST uses a breathing apparatus in HUET training for groups other than offshore workers. However, for offshore workers, MI and SST only conduct training with the breathing apparatus using an inverted chair and other activities in a shallow pool. The restricted use of breathing apparatus for the offshore industry stems from a decision by CAPP's Safety Committee and ad-hoc medical representation. Both training facilities believe that the use of a breathing apparatus during HUET training would increase the fidelity of training. SST was not aware of any reported injuries experienced by other industries that use a HUEBA in the HUET. MI was clear that they would not support HUEBA in the HUET until the medical issues have been addressed.

Recently, CAPP completed a quality review of the training facilities' programs. One of the findings indicated that the standards were not competency-based. Both training facilities welcome the addition of the BST addendum to the CAPP TQSP standard. Representatives of the facilities feel that a more

## Advice to the C-NLOPB: Recommendations 13 and 14

descriptive expectation of program delivery will increase the fidelity of training and allow for a better understanding of the industry's expectations.

### Meeting - CAPP

A meeting was held with CAPP to discuss the TQSP, the TQC and their training facility review process. The TQC is a standalone committee within CAPP that is responsible for reviewing and revising the TQSP. Members of the committee include industry representatives but do not include offshore workers.

The TQSP consists of safety training guidelines for a variety of positions in the offshore industry (e.g., electricians, deck hands, roustabouts) as well as survival training (e.g., BST and lifeboat training). The TQSP is reviewed every 12-24 months. Proposed changes are reviewed within the TQC and presented to the offshore JOHS committees for review and comment. CAPP views this as an effective way to involve the offshore workforce.

The offshore survival training facilities, MI and SST, were assessed as part of a multiphase review process completed by the CAPP TQC. It was identified during this process that there were differences between the NL and NS training facilities in the delivery of training due to a lack of competency-based standards. To address the findings, additional guidance on the survival training has been created. This guidance is currently under review and expected to be in place later in 2011. The new guidance will provide more clarity for training requirements in order to make training consistent and at a greater level of fidelity.

CAPP does not plan to complete a risk assessment prior to implementing the guidance, nor do they plan to complete an audit after implementation.

### Meeting – Wellness provider

Some Operators currently contract providers of wellness programs. The provider can advise on wellness and work with personnel to develop a suitable physical fitness training program. This is available to most offshore workers who are on a regular schedule offshore. The Team had an informative meeting with Definitions, a leading provider in the industry.

# Advice to the C-NLOPB: Recommendations 13 and 14

## Discussion

Although “physical fitness” is referred to in the recommendation, the group determined that based on its research and consultations with subject matter experts, “physical capability” was a more appropriate term in the context of training requirements.

There is no requirement to assess physical capability before BST training and offshore travel to the C-NL offshore. The training providers require a medical assessment to be completed prior to training.

Therefore, the level of physical capability required for BST training depends on the individual. Offshore helicopter passengers have differing opinions on what this level is and what it should include.

Commissioner Wells in the OHSI Report stated that “It may seem to be beyond the call of duty for a worker on his or her own time to practice in a pool or off a beach, but one’s personal safety is never beyond the call of duty. The duty is to oneself and to the other passengers in the helicopter who will implicitly be relying on the skills of all to control panic, so that no one impedes the escape or rescue of others” (Vol. 1, pp. 238-9). Commissioner Wells goes on to say that he believes that “physical fitness and the confidence that it engenders would be a plus in surviving a ditching” (Vol. 1, p. 239). Supporting this, Susan Coleshaw stated in her submission to the Inquiry that offshore medicals should be enhanced to include a balance between being physically fit and a fitness to work requirement (Vol. 2, pp. 168-9). By implementing goals for physical capabilities, there is a potential for enhanced confidence in completing the BST training and therefore increasing safety preparedness for offshore travel.

During the group’s hazard identification session, it was noted that certain aspects of helicopter safety and equipment (e.g., flotation, auxiliary tanks, and obstructions to ascending to the surface if submerged) are not incorporated into BST training. It is the opinion of the group that if such on-board equipment is installed in the helicopter airframe(s), it should be assessed to see if it needs to be included in the BST. Currently, when new helicopter safety equipment/procedures are changed, the training institutes are not advised of the changes, so they are not able to incorporate them into their training.

There are plans for the TQSP to be amended to include a BST addendum. Training institutes and trainers must ensure the safety of students involved in the training. The safety of the students must be paramount while attaining higher fidelity in training. The Implementation Team believes that the training facilities should complete a risk assessment of the proposed changes to training. The risk assessment should be completed with subject matter experts and members of the regulatory boards, the Operators, and the offshore workforce. This risk assessment should be based on the Management of Change philosophy that is familiar to the offshore industry. As a change is suggested, a review of the change and any risk that it may create is identified and assessed to ensure that the risk is as low as reasonably practicable, and that mitigating measures are put in place if necessary, prior to implementation.

The CAPP TQC consists of representatives from the Canadian Association of Oilwell Drilling Contractors (CAODC), Regulators, Operators, and CAPP (CAPP provides administrative/secretarial support). The TQC

## Advice to the C-NLOPB: Recommendations 13 and 14

consults with training institutes (primarily MI and SST). There is no direct worker representation on the TQC. Commissioner Wells stresses many times in the OHSI Report that workers “should have a voice in the solutions or improvements” because, he says, “That is the way a performance-based system functions best” (Vol. 1, p. 203). The Team is of the collective opinion that representation by offshore workers would be valuable to the TQC.

The Team discussed implementation of a new, separate training standard specifically for survival training and safety-related positions (such as Emergency Response Team). Such an initiative would be consistent with training standards developed in the UK, Norway, and the Netherlands. It was noted that a separate standard would allow a dedicated working group to concentrate on survival training and safety-related positions. It would facilitate quality assurance of the training standards, in part because the scope of the group would be narrower than that of the TQC. The consensus of the group was that a separate document might take a considerable amount of time to develop properly and become the standard for survival training and safety-related positions. However, separating this material from the CAPP TQSP could potentially be beneficial, and should be considered in the future.

In Volume 2 of the OHSI Report, Susan Coleshaw and Michael Taber address the issue of fidelity in helicopter survival training. Their research summary includes conclusions on the use of a breathing apparatus in a helicopter egress simulator, cold water shock testing and the benefits of helicopter egress simulator training. Some points to emphasize from their work include Coleshaw’s reference of work by Summers, asserting the importance of “physically [going] through the actions required to locate an exit and operate the exit mechanism” (Vol. 2, p. 166) and Taber’s statement that “The declarative knowledge covered during the theory portion of a HUET course should be designed to increase the possibility that individuals are able to create a beneficial survival plan regardless of the helicopter configuration used for offshore travel” (Vol. 2, p. 244).

The Team met with the National Research Council’s Institute for Ocean Technology (IOT). The IOT research scientists indicated that they could conduct experiments on human performance during BST training in a HUET. Coleshaw and Taber illustrate that some people behave differently when they face actual emergency situations. To better understand the effects of the training on participants, a study of the human factors associated with BST training in the HUET would be beneficial. Ideally, the aim of the training would be to reduce the likelihood of an ineffective response during an emergency by familiarizing individuals with typical emergency scenarios, and with the equipment and procedures that must be used.

The Team developed “Performance Goals for Helicopter Survival Training” in order to advise the Board on goals that should be considered when implementing Recommendations 13 and 14. This document is attached as Appendix C.

The document contains high- and medium-level goals for a survival training program. Guidance statements for each goal outline the suggested means by which the performance goal could be achieved. The guidance statements are drafts, and the Implementation Team expects that they will be developed further by the Regulator. The Team envisioned that Operators would be responsible for ensuring that the survival training meets the performance goals. The Operators would evaluate the

## Advice to the C-NLOPB: Recommendations 13 and 14

training facilities and demonstrate to the Board that the programs being delivered by the training facilities met the performance requirements.

### Conclusion

- 1) It is recommended that the goals from the Team's "Performance Goals for Helicopter Survival Training" (Appendix C) be adopted by the C-NLOPB and further reviewed and revised to meet the intent of the Inquiry recommendations. It is further recommended that the C-NLOPB hold the Operators accountable to demonstrate that their training programs meet the performance goals.
- 2) It is recommended that the development of the Performance Goals be expanded to include all aspects of the current BST course at an appropriate time in the future.
- 3) (a) It is recommended that a risk assessment be conducted to evaluate risks associated with the current BST training, and subsequently, when future changes to BST content are proposed.  
  
(b) It is recommended that a risk assessment be completed prior to the implementation of the BST Addendum to the CAPP TQSP in order to manage related risks. The risk assessment should be completed with representation from the Operators, training facilities, the Regulators, and the offshore workforce. This process is consistent with industry practices related to the management of change.
- 4) It is recommended that the Operators ensure that the offshore workforce is actively involved in the development and review of training standards.
- 5) As noted in Recommendation 6, an individual's physical capability relates to personal accountability, and should continue to be promoted by the Operators. In addition to the performance goal on physical capability outlined in Appendix C, it is recommended that the Operators adopt programs to:
  - a. Promote healthy lifestyle choices;
  - b. Highlight benefits of healthy lifestyle choices as they relate to safety training and working in an offshore environment; and
  - c. Provide access to wellness plans and education on physical fitness.
- 6) An understanding of human factors related to survival training would aid the evaluation and review of training standards for the C-NL Offshore Industry. It is recommended that the Helicopter Operations and Safety Committee (HOSC) (as described in the Advising Document for Recommendation 20) commission an analysis of human factors as they relate to survival training.

# Advice to the C-NLOPB: Recommendations 13 and 14

## Appendix A

### Helicopter Operations Hazard Identification and Gap Analysis

One aspect of the response to the recommendations from the Inquiry was a hazard identification (HAZID) and gap analysis session to identify hazards associated with current practices for flight operations offshore. The session identified existing safeguards in place which mitigate these hazards, and as well identified the current gaps (deficiencies) that exist and potential methods to address such gaps. The identified system deficiencies have helped the Team to develop performance-based goals.

Participants included a working group of the Implementation Team, the C-NLOPB Aviation Advisor, Cougar's SAR Lead Pilot, and Cougar's Team Lead Rescue Specialist.

In order to reduce the risk associated with helicopter transport, either one or both of the following must occur:

1. Further reduce the likelihood of ditching; and/or
2. Further improve the likelihood of survival.

The focus of the HAZID was on Item 2, above. In order to improve the likelihood of survival, the following conditions would need to be met:

1. Helicopter remains upright;
2. Passengers successfully egress the helicopter;
3. Passengers survive the present environmental conditions; and
4. Passengers are recovered by First Responders (i.e. helicopter or supply vessel) in a timely manner.

It was noted during the session that several factors would need to align in order for an aircraft to remain upright. Therefore, the focus of the discussion was on items two through four above. The bulk of the discussion and findings were related to the successful egress of the helicopter and that personnel survive the harsh environmental conditions until First Response arrive.

The focus of the HAZID was on planned ditching on water and was broken into three categories:

1. General hazards associated with Ditching;
2. Recovery via Helicopter; and
3. Recovery via Supply Vessel.

34 deficiencies were noted over the three sessions. If the identified gaps in training are addressed, it would increase personnel familiarity with a wider range of scenarios and likely increase the likelihood of a successful egress from a ditched aircraft.

Almost two thirds of the identified deficiencies relate to gaps in training and/or passenger physical condition. These deficiencies are highlighted in the chart on the following page.

## Advice to the C-NLOPB: Recommendations 13 and 14

#	System Deficiency	Communication	Information	Training/Familiarity	Flight Planning	Passenger Physical Condition	Environmental Conditions	Survival/SAR Equipment/Procedure
1	Bluesky information is not readily available to pilot while in flight. In the event of an emergency, pilots could avail of knowing the location of supply vessels for decreased time for recovery in the event of a ditch.	X	X					
2	Pilots do not currently have specific command and control training for ditching/egress scenarios.			X				
3	Pilots are currently not cross-trained with the BST training that is provided to passengers and are not aware of the expected passenger actions upon egressing. This may limit the Pilot's ability to effectively take command once the aircraft has landed on the water surface			X				
4	In discussions regarding visibility of passengers, it was noted that keeping the liferafts attached to an upright and stable aircraft (if sea states permit) would increase the visibility of the liferaft to the SAR team and would also allow access to additional medical supplies from the aircraft if the supplies diminish in the liferaft. It was also noted that if the liferaft remains attached that one person should be assigned to keep watch of the aircraft and cut the painter immediately if there is any indication that the aircraft starts to roll or sink.		X	X				
5	Pilots do not know if the aircraft isn't being tracked unless notified by Cougar Flight Following or Installation CCR Operator. There is no way to know the precise location of the aircraft if Bluesky malfunctions. Consider the use of AIS for helicopter operations	X	X					
6	BST training currently does not train with removing windows underwater.			X				
7	HUET training does not include the use of HUEBA while exiting the HUET (including while inverted). Passengers are unfamiliar with the ease/difficulty required to remove window once submerged.			X				
8	BST HUET training does not use egress from inverted aircraft with the floatation inflated. This could cause confusion with personnel as the ascend to the surface of the water.			X				
9	All stakeholders are not engaged when developing BST training curriculums.	X		X				
10	HUET training does not include escape with the presence of Auxiliary tanks in the cabin. There is uncertainty with respect to the particular height or size of person that may have difficulty in reaching over the Auxiliary tank to remove the escape window. This could be a consideration for assigned seating scenarios.			X	X	X		
11	HUET training does not cover the stroking of seats that would occur upon impact with the water.			X				
12	BST does not give awareness of the potential debris that could be present when egressing aircraft from underwater (e.g. aircraft debris, ice, etc). Awareness is only given to debris that could be on the surface of the water when egressing from an aircraft that remains afloat.			X			X	
13	HUET training does not give guidance on time spent trying to open assigned exit and when to relocate to an alternate exit.			X				
14	Pilot simulator training is limited in scenarios involving landing in reduced visibility.			X				
15	If there is a mechanical problem with the aircraft, passengers might not be able to hear the pilot announcement to prepare for ditching. Alternate communication/notification could allow more reaction time for the Pilot and passengers to prepare.	X						
16	Current ice conditions are not known to the pilots. Pre flight updates should include current ice status.	X	X				X	
17	HUET training provided in NL does not prepare tandem person for exit after person next to window exits.			X				
18	Personnel size is not considered in seating arrangements.				X	X		
19	Escape through window not considered in medical clearance to work offshore.					X		
20	BST training uses immersion suit vs. flight suit on sea day.			X				
21	There is currently no training for cold water shock.			X		X		
22	There is no personal accountability for personnel undergarments.					X		
23	HUEBA training should clarify use of HUEBA for breathing in presence of heavy smoke.			X				
24	Pilot suits are different from the passenger flight suits (colour, no CMSG design standard, no D-Link on suits), etc.					X		X
25	BST training does not train for scenarios in decreased lighting scenarios.			X				
26	Limited aids for pilots to conduct ditching at night.		X					X
27	Commercial flight planning considers weather window to allow enough time to fly to installations and return prior to forecasted weather deteriorating but do not consider SAR response time that would be required in the event of a ditching.				X			
28	Formal communication protocol between Cougar and DND is not yet established. Refer to Inquiry Recommendation 4.	X						
29	There are no established weather limits with respect to wind and sea states for the safe execution of SAR activities on site by SAR air craft (If weather limits allow the SAR aircraft to launch) or by Supply Vessel.						X	X
30	There are no two-way radios currently in the aircraft liferafts to allow communication between SAR team and liferaft.	X						X
31	Auto-hover certification is outstanding.							X
32	TP 7920E does not mandate use of the SAR equipment (PLB direction finders, Dacon scoops, etc.) on FRCs and Standby vessels.							X
33	There are no drills or other training for FRC operations at night.			X				
34	There are no established performance standards for operating limits across supply vessel fleet.						X	X

## Advice to the C-NLOPB: Recommendations 13 and 14

### Appendix B

#### Summary of International Training Standards

##### **Atlantic Canada: CAPP's "Standard Practice for the Training and Qualifications of Personnel" (TQSP)**

The Canadian Association of Petroleum Producers (CAPP) is a lobby group that represent various oil and gas industry companies throughout Canada. CAPP's main office is located in Calgary, Alberta, and there is an office in St. John's to address the needs of the Atlantic oil and gas industry.

The Atlantic CAPP office has developed a training standard entitled "Atlantic Canada Offshore Petroleum Industry Standard Practice for the Training and Qualifications of Personnel" (TQSP). This document is maintained by the Training Qualifications Committee (TQC). The TQC is comprised of representatives from the Operators in the C-NL Offshore Area, training institutes, and Regulators. There is no direct offshore worker involvement. Any changes and updates to the TQSP are sent to the workforce via each installation's Joint Occupational Health and Safety Committee for review and comment 45 days prior to final approval.

The TQSP outlines qualifications and training required for various offshore positions on drilling and production platforms. Such positions include Driller, Subsea Engineer, Offshore Installation Manager and Process Operator. The document also outlines "Mandatory Safety Training for All Petroleum Installations". This training includes Personal Safety Training, such as the Basic Survival Training (required by all personnel) and Technical Safety and Emergency Training for specialist positions such as Banksman and Emergency Response Team.

The Basic Survival Training is a requirement for all personnel who travel offshore regularly. The TQSP outlines course objectives and high-level course content. The high-level course content outlines topics for the training course, but does not specifically state how the training should be given and assessed. The TQC are currently reviewing the course content and are developing a proposed Addendum which will expand on the high-level course outlined in the TQSP.

CAPP specifically states that they do not accredit or approve courses or training facilities, nor do they formally audit the courses. However, they do make an effort to monitor the quality of course delivery using feedback from individual participants.

##### **Norway: OLF's "Guidelines for Safety and Emergency Training"**

The Norwegian Oil Industry Association (OLF) is a professional body of Operators and supplier companies involved in the exploration for and production of oil and gas in the Norwegian Continental Shelf. The OLF has developed a standard called the "Guidelines for Safety and Emergency Training" which promotes a common understanding and practice of the safety and emergency preparedness training. The Petroleum Safety Authority (PSA) regulations state that the licensee of an operation must ensure that everyone who stays on the installation has received appropriate training. The OLF guideline is accepted as the training standard for the industry and outlines minimum requirements. It is the operating companies that have the responsibility to ensure their workers are in compliance with these guidelines. This compliance is captured with the Operators' internal control systems and quality assurance procedures.

## Advice to the C-NLOPB: Recommendations 13 and 14

The standard outlines training requirements for offshore safety training and safety positions (e.g., Emergency Response Team, Lifeboat Coxswain). The course descriptions are high-level and state content but do not state performance goals for each aspect of the training.

The Basic Safety and Emergency Training course content is presented at a high level, and states duration and frequency for re-training. The student-to-instructor ratio is stated for each aspect of the training and students are required to complete an e-learning course prior to attending the course. It is noted that there is a minimum requirement to complete the underwater evacuation drills with and without a breathing apparatus. Safety culture is stressed throughout the course and it is stated that it is important that the students feel safe and see that they're making progress during practical training.

### **Netherlands: "NOGEPA Training Handbook"**

The Netherlands training standard, the "NOGEPA Training Handbook", was developed by the Netherlands Oil and Gas Exploration and Production Association (NOGEPA). NOGEPA represents the interests of companies possessing permits to drill for and to produce oil and gas for the Dutch Continental Shelf. The standard meets the demands for training and competence as requested by the Dutch authorities. The training handbook acts as a guideline for the training of personnel of "mining" (includes offshore oil and gas production) companies. As with the OLF and CAPP standards, the onus is on the Operators to ensure that their workers are in compliance with the standard. NOGEPA also provides a Training Evaluation Procedure which is the basis for conducting audits of the training facilities. The Handbook outlines course training and qualifications for the survival training and safety-related position training as well as leadership roles for the offshore platforms.

The Handbook stipulates that the training institutes shall comply with the latest ISO standards or equivalent, related to quality assurance systems. They shall also supply a trainers manual for each instructor during the course and a handout containing all relevant training topics to the delegates. The handbook also states what the instructors' experience and knowledge shall be.

The course's learning targets are descriptive, outlining details about the specific course objectives. The classroom-based content and practical exercise content are specified. It is not, however, descriptive to the point of setting performance-based goals. The student-to-instructor ratio is also stated for the practical exercise activities.

It is important to note that the standard states that delegates shall be "physically fit to attend the course". It is unclear how this is monitored by the training facilities or the medical examination physicians.

### **UK : OPITO's "Minimum Industry Safety Training Standard",**

The Offshore Petroleum Industry Training Organization (OPITO) standard is an approved standard for Basic Offshore Safety Induction and Emergency Training (BOSIET). It is aimed to meet the safety and emergency response training required for personnel in the offshore oil and gas industry. The training is a component of the Step Change in Safety organization's Common Induction process.

The learning outcomes and training program required for the BOSIET course are comprehensive and descriptive. The actions for the helicopter safety and escape component are descriptive and state the different types of egress that must be covered in the training. Notably, there is no requirement for a Sea Day: all practical exercises (helicopter egress and sea survival) are done in a pool. Another aspect of the training that is different from the CAPP training standard is that helicopter egress is to be completed with an emergency breathing apparatus. The UK sector uses a different style of breathing apparatus from Atlantic Canada: a re-breather rather than a compressed air system (such as the HUEBA).

## Advice to the C-NLOPB: Recommendations 13 and 14

Requirements for the training facility are stated and include trainer competencies and ratios. It is stated that the practical exercise should be delivered in a safe manner and not place on the participants any physical and mental demands other than those required to meet the standard. One of the instructor competencies stated is to be able to cope with the stress/anxiety of trainees in the HUET and Emergency Breathing Systems (EBS) training.

The standard also includes a complete Instructor's Guide, outlining key topics to be discussed, training aids, and the minimum time allotment for each topic.

## Appendix C

### Helicopter Survival Training Performance Goals Guidance

#### 1 Introduction

The purpose of goal setting is to focus on achieving a desired, result rather than on how that result is achieved.

Helicopter survival training programs (as a part of Basic Survival Training) should be structured to provide an adequate level of training to respond to emergencies while traveling to/from offshore installations. This should begin with identifying credible hazards that may occur during an offshore helicopter flight. The results of this hazard identification should be used to create a training program that addresses the training needs of passengers in order to successfully survive a helicopter emergency.

#### 2 Purpose

This document provides performance objectives and goals for helicopter survival training for the C-NL offshore industry. The training is intended to aid personnel to survive a ditching.

Guidance statements outline suggested means of achieving the performance objectives and goals.

This Guide applies to all Operators providing helicopter transportation to their offshore facilities in the C-NL Offshore Area. The onus is on the Operator to demonstrate to the Regulator that the performance goals are achieved.

#### 3 Performance Goals

##### 3.1 Performance Objective

Participants shall be physically and medically able to complete all aspects of survival training.

##### 3.1.1 Goals

- a) Participants shall be medically assessed to ensure that a medical condition does not exist which would impede the success of completing the training
- b) Participants need to be able-bodied, agile and must be able to cope with the demands of helicopter survival training. Participants shall be capable of self rescue and not be an impediment to others.

## Advice to the C-NLOPB: Recommendations 13 and 14

### 3.1.2 GUIDANCE

*N.B. The guidance is to be reviewed prior to implementation*

- a) *A Current Medical Certificate as stated in accepted training standards (for example, CAPP's East Coast Medical Assessment for Fitness to Work Offshore)*
- b) *Physical assessment to include mobility, range of motion, balance, and strength tests. Consideration should be given to the following: no physical limitation which could unduly limit donning of a helicopter flight suit, balance, mobility, speed of movement, physical effort to climb through helicopter windows and enter a life raft, or perform in-water survival techniques.*

### 3.2 Performance Objective

Helicopter survival training theory and practical exercises shall prepare participants for all reasonable and foreseeable helicopter emergency situations (ditching & egress).

#### 3.2.1 GOAL

- a) *Participants shall demonstrate competence in emergency procedures and use of helicopter personal protection and survival equipment*
- b) *Practical exercises shall be completed in a reasonably realistic scenario without causing undue risk to participants*

#### 3.2.2 GUIDANCE

*N.B. The guidance is to be reviewed prior to implementation*

- a) *Applicable training standard to be the basis of course content (currently, CAPP TQSP)*
- b) *Participants shall wear flight suits during HUET training. Participants shall be issued with a properly fitting helicopter flight suit. Flight suit size must be assessed by a competent flight suit assessor*
- c) *Participants shall complete survival training techniques without instructor assistance by the end of the course*
- d) *Emergency command and control instruction while ditching to be included*
- e) *Participants shall demonstrate proficient use of a helicopter breathing apparatus*
- f) *Participants shall be able to prepare for ditching in a seated position without assistance*
- g) *Participants shall be able to remove emergency exits upon ditching*
- h) *Participants shall be able to remove window exit successfully, above and below water (force to remove window should be in line with actual force required)*
- i) *Participants should be familiar with signage, lighting and escape routes within helicopter*
- j) *Helicopter Underwater Escape Trainer (HUET) should be able to be configured to replicate various helicopter types generally used for travel offshore. This includes*

## Advice to the C-NLOPB: Recommendations 13 and 14

*window exit size, emergency exit size, and seat configuration of the airframe(s) in use*

- k) Formal protocol shall be in place between Operators and Training Service Providers to ensure helicopter airframe equipment and procedures are reflected in the HUET*
- l) HUET immersions to include upright and inverted egress. Optional HUET runs and scenarios should be made available to participants*

### **3.3 Performance Objective**

Helicopter survival training theory and practical exercises shall prepare participants for all reasonable and foreseeable circumstances of post-egress survival.

#### **3.3.1 GOAL**

- a) Participants shall demonstrate competence in sea survival techniques
- b) Participants shall demonstrate competence in use of life-saving appliances and functions of the helicopter flight suit
- c) Practical exercises shall be completed in a reasonably realistic scenario without causing undue risk to participants

#### **3.3.2 GUIDANCE**

*N.B. The guidance is to be reviewed prior to implementation*

- a) Applicable training standard to be the basis of course content (for example CAPP TQSP)*
- b) Participants shall be familiar with techniques to enter a liferaft*
- c) Participants shall be familiar with onboard liferaft safety equipment*
- d) Participants shall demonstrate how to utilize helicopter flight suit safety accessories (e.g., spray shield)*
- e) Participants shall demonstrate sea survival in-water techniques*
- f) Post-egress training to be completed in an environment which adequately represents the typical C-NL offshore conditions*
- g) Participants shall wear flight suits during post-egress training*

### **3.4 Performance Objective 4**

Helicopter survival training shall be at a practical frequency to ensure proficiency in survival training techniques.

## Advice to the C-NLOPB: Recommendations 13 and 14

### **3.4.1 GOAL**

- a) Frequency of theory and practical exercise shall be at an interval which encourages memory retention of training techniques.

### **3.4.2 GUIDANCE**

*N.B. The guidance is to be reviewed prior to implementation*

*It is unknown what the optimal/practical training frequency is at the time of writing. This should be discussed between the Operators, training institutes, offshore workforce, Regulators, and Subject Matter Experts before guidance is put in place.*