Newfoundland and Labrador Offshore Helicopter Safety Inquiry

Phase II

Submission of the

Canadian Association of Petroleum Producers

April 15, 2011

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Introduction

The Canadian Association of Petroleum Producers (CAPP) represents companies, large and small, that explore for, develop and produce natural gas and crude oil throughout Canada. CAPP's (see page 13 for <u>list of acronyms</u>) member companies produce more than 90 per cent of Canada's natural gas and crude oil. CAPP's associate members provide a wide range of services that support the upstream crude oil and natural gas industry. Together CAPP's members and associate members are an important part of a national industry with revenues of about \$100 billion a year. CAPP has offices in St. John's, NL and Calgary, AB. CAPP's mission is to enhance the economic sustainability of the Canadian upstream petroleum industry in a safe and environmentally and socially responsible manner, through constructive engagement and communication with governments, the public and stakeholders in the communities in which we operate.

The purpose of the Offshore Helicopter Safety Inquiry (OHSI), as set out in its Terms of Reference, is to determine what improvements can be made so that the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) can determine that the risks of helicopter transportation of offshore workers are as low as is reasonably practicable in the Newfoundland and Labrador Offshore Area. CAPP supports the purpose of this Inquiry and has participated since the Inquiry began by providing evidence and information where appropriate.

CAPP participated in Phase I of the Inquiry and provided evidence related to four key issues: process of implementing a helicopter underwater emergency breathing apparatus, work on a helicopter passenger transportation suit standard and related issues, development of an Escape, Evacuation and Rescue guideline, and CAPP participation in the United Kingdom Helicopter Task Force. CAPP also provided a written submission to the Inquiry on issues of particular interest to CAPP with a view to assisting the Commissioner with the investigation. CAPP's submission is included in Volume 3 of the Offshore Helicopter Safety Inquiry Phase I report¹.

¹ Shortcut to: <u>http://www.cnlopb.nl.ca/pdfs/ohsi/ohsir_vol3.pdf</u>

CAPP is providing this submission to assist in Phase II of the Inquiry. This submission represents the views of CAPP members with interests in the Newfoundland and Labrador offshore area and has been endorsed by CAPP's Atlantic Canada Executive Policy Group (EPG)².

Update on OHSI Phase I Recommendations:

In the Phase I OHSI report, the Commissioner made a recommendation that the C-NLOPB review its relationship with CAPP and that the oil operators define CAPP's authority so that stakeholders understand that authority³. CAPP, on behalf of the operators in Newfoundland and Labrador, has addressed this recommendation with the C-NLOPB and we believe this issue has now been resolved. CAPP has clarified that as the national industry body, it provides collective comment on proposed policy, regulations or guidance documents as they are developed by governments and regulators. There is, therefore, no confusion with respect to roles - governments and regulators implement and enforce guidelines and regulations. CAPP builds upon these guidelines and regulations to develop supporting best practice documents for industry member use.

In order to improve communications with the C-NLOPB and to ensure CAPP's committee structure and processes support timely achievement of industry consensus and effective interactions with the regulator, CAPP has implemented a number of process improvements over the last year. These include:

- Improving the interface between CAPP and the regulator(s) by ensuring expectations, priorities and timelines are clear and providing formal progress reporting at regular intervals.
- Improving CAPP's internal processes for managing complex projects by identifying a project champion from the Atlantic Canada EPG for complex projects.
- Ensuring CAPP member company engagement and support by developing a clear terms of reference for complex projects including expectations and roles of committee members and expectations related to member resources.
- Improving stakeholder engagement by developing stakeholder engagement plans for every complex project and developing communication materials and feedback templates.

² CAPP's Atlantic Canada EPG is comprised of senior management from CAPP member companies with interests in Atlantic Canada in particular those with interests in offshore Newfoundland and Labrador and Nova Scotia

³ Recommendation 21 of the Offshore Helicopter Safety Inquiry Phase I report

• Ensuring the C-NLOPB is aware of CAPP's priority issues and vice versa by holding formal meetings at least twice per year between the C-NLOPB and CAPP member executives/staff.

CAPP has also had involvement in discussions/initiatives related to other Phase I recommendations, specifically, helicopter safety training and survival, and personal protective equipment. As these issues are also raised in the Transportation Safety Board of Canada (TSB) report on its investigation into the crash of the Cougar Helicopter Sikorsky S92-A, CAPP's involvement in these issues is outlined in the section below entitled "CAPP Initiatives in Relation to TSB Report".

Phase II Submission:

In Phase II of the Inquiry the Commissioner will review the report by the TSB on its investigation into the crash of the Cougar Helicopter Sikorsky S92-A. In reviewing the investigation report, the Commissioner will advise the C-NLOPB: *a) which findings should result in actions being recommended to be undertaken by the C-NLOPB and how they should be implemented; and, b) which findings should result in actions being recommended to be taken by other legislative or regulatory agencies⁴.*

The TSB report contained four recommendations, findings in relation to cause and contributing risk factors.

Following the issuance of that report, the C-NLOPB established teams who will facilitate the implementation of those recommendations. Given the extensive response that is already underway, we respectfully submit that no additional recommendations are required by the Commissioner in response to the TSB report.

CAPP Initiatives in Relation to TSB Report:

CAPP understands that written submissions should highlight improvements that have been made in relation to safety performance.

In this section, CAPP will provide additional information on work industry is doing, over and above the activities underway through the C-NLOPB's OHSI teams, in relation to some of the contributing risk factors identified in the TSB report.

Basic Survival Training:

The TSB report highlights two risk factors related to training:

⁴ Shortcut to: <u>http://www.oshsi.nl.ca/?Content=About_the_Inquiry</u>

- That the current basic survival training standards in Canada lack clearly defined, realistic training standards and equipment requirements. This could lead to differences in the quality of training and affect occupant survivability⁵.
- That an interval of 3 years between recurrent basic survival training may result in an unacceptable amount of skill decay between recurrent training sessions. This skill decay could reduce the probability of successful egress from a submerged helicopter.⁶

In order to provide context around current training standards, it is important to understand the model used in Atlantic Canada to oversee training for the offshore. This model was presented in CAPP's Phase I submission to the Inquiry.⁷

The Training and Qualifications Committee (TQC) is a collaborative effort between CAPP, the Canadian Association of Oilwell Drilling Contractors (CAODC), training institutions, the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) and the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB). The TQC maintains the Atlantic Canada Offshore Petroleum Industry Standard Practice for the Training and Qualifications of Personnel (the TQSP), and undertakes other initiatives related to training. The purpose of the TQSP is: to outline the training required by individuals working offshore in Atlantic Canada and the qualifications per position for drilling installations, production installations and supply and standby vessels. It further defines the emergency preparedness and response teams and their training required on offshore installations. CAPP is the custodian of the TQSP and the C-NLOPB and CNSOPB administer it. The TQC reports to the CNSOPB and the C-NLOPB as well as to the CAPP Atlantic Canada Safety Committee. The decisions of the TQC are ratified by the CAPP Atlantic Canada EPG and the C-NLOPB and CNSOPB. Feedback mechanisms and annual reviews have been built into the TQSP to ensure that there are opportunities for engagement of the workforce and other stakeholders.

The TQC has put in place an inclusive process by which stakeholders involved in offshore training, those with the expertise as well as those with the responsibility for oversight, work together to ensure that training for the offshore workforce in Atlantic Canada is the most appropriate for the offshore environment in Atlantic Canada. The process is founded on the principle of continuous improvement so the document is a living document, updated regularly with processes built in to receive feedback from key players in the offshore. The TQC has not only developed common training and qualifications requirements but has become a vehicle through which suggested improvements to training and qualifications can be tabled and discussed by experts and regulators.

⁵ TSB Report, section 3.2, Finding 14

⁶ TSB Report, section 3.2, Finding 15

⁷ Shortcut to: <u>http://www.cnlopb.nl.ca/pdfs/ohsi/ohsir_vol3.pdf</u>

Basic Survival Training (BST)/Basic Survival Training Recurrent (BST-R) Standards and Consistency

In recent years, the TQC has taken on evaluation of the course quality for offshore training. The course quality review is a transparent, flexible process whereby a third party industry consultant together with subject matter experts review training courses against established criteria and make recommendations on areas where there is a potential for improvement.

The BST and BST-R courses at both the Marine Institute – Offshore Safety and Survival Centre in Newfoundland and Labrador and Survival Systems Training Limited in Nova Scotia were reviewed in 2009. Training at both institutes was found to be of good quality and met the intent of the TQSP. The review also identified suggested enhancements to align training approaches between jurisdictions. The TQC identified that the standard can be improved by the development of performance based learning objectives which would have the effect of achieving higher levels of consistency in training program delivery.

The TQC has initiated a process to develop performance based learning objectives for the BST and BST-R courses. Work to develop competency-based performance standards which identify skills and knowledge requirements is expected to be completed in the next revision of the TQSP. The TQC will also be following this approach for other courses.

Training Equipment

Consistency in the training equipment used by the respective training institutes is also being considered as part of the TQC's review of the BST and BST-R courses. The TQC has committed to defining the criteria for equipment related to BST training with the goal of including this information in a revised standard.

Frequency of Training

The purpose of the BST-R is to ensure retention of the practice skills learned in the BST. In many other jurisdictions, the recurrent takes place every four years. In Canada, the recurrent takes place every three years, exceeding the standards set by other jurisdictions such as the North Sea. The TQC has considered the issue of frequency of training a number of times and has maintained the view that the recurrent should take place every three years rather than increasing to four to be more in line with other jurisdictions.

The discussion and evaluation of whether or not the BST-R should increase in frequency is complex in that industry will be required to strike a balance between the potential benefits and any increased risk to trainees which could be caused by increasing the frequency of training. A thorough evaluation of this issue is therefore required and CAPP maintains that the TQC is the proper venue for discussing and evaluating this issue.

Helicopter Passenger Transportation Suit Systems and Related Standard

The TSB report identifies the following issue related to helicopter passenger transportation suits:

- Passenger Transportation Suit Systems (PTSS) designed to meet the standard for marine abandonment have high buoyancy and flotation capabilities. While useful in a marine abandonment situation, these features may interfere with a successful egress from a submerged helicopter.⁸

All of the helicopter passenger transportation suits used for industry operations in the Atlantic Canada offshore are certified to a Canadian General Standards Board (CGSB) helicopter suit standard which takes into account escape buoyancy⁹ considerations. These suits are also designed to meet the CGSB Immersion Suit Systems Standard (65.16-05), sometimes referred to as the marine abandonment standard, but must meet escape buoyancy requirements as part of the helicopter suit standard as well.

In early 2009, the CGSB sought funding to review their Helicopter Passenger Transportation Suit Systems standard (CGSB 65.17-99). CAPP members supported the review of the standard. The review commenced in November 2009 and, under the auspices of the CGSB Committee¹⁰, is progressing through the establishment of a CGSB working group¹¹.

CAPP Role in the Review

The process established for the review of 65.17-99 includes oversight by CGSB staff, review and direction provided by the CGSB Committee, establishment of a working group comprised of Committee members to undertake the work of the revision and final vote by CGSB Committee to confirm the final standard.

⁸ TSB Report, section 3.2, Finding 16

⁹ Escape buoyancy is defined as the buoyancy of the suit system on the wearer, which the wearer must overcome when escaping from an immersed, inverted helicopter.

¹⁰ CGSB Committee 65-2 maintains the Helicopter Passenger Transportation Suit System (CAN/CGSB 65.17-99) and the Immersion Suit System (CAN/CGSB 65.16-05); it is comprised of a balance of end users (e.g. ExxonMobil; Suncor; Husky; Communications, Energy and Paper Workers Union; Fishermen Food and Allied Workers; DND; etc.), regulators (Offshore Petroleum Boards; National Energy Board; Transport Canada), producers (e.g. Helly Hansen; Mustang Survival; DSS Group of Companies; etc.), and general interest (e.g. Marine Institute; The CORD Group; National Research Council of Canada; etc.)

¹¹ Each CGSB membership category is represented on the working Group: *Regulators:* C-NLOPB, *End Users:* ExxonMobil and CAPP, *Producers:* Mustang and Helly Hansen, *Other:* CORD Group (suit research and test facility)

CAPP has a formal seat and vote on the CGSB Committee, and has actively participated in all Committee meetings pertaining to this review. Additionally, CAPP is a member of the CGSB Working Group established to undertake the review. The CGSB Working Group meets weekly and is responsible for content, drafting and research direction for the overall review. CAPP is managing the Working Group and, in combination with Petroleum Research Atlantic Canada, managing the research components of the review. CAPP communicates with members to apprise them regularly of the status (via the CAPP Atlantic Canada Safety Committee) and ensures industry feedback on the review is incorporated into the process.

In addition, in 2009 industry, through CAPP, sought to improve the evaluation of water ingress into suit systems. CAPP worked with researchers to develop a new water ingress test methodology incorporating submerged helicopter egress, simulated survival at sea and realistic weather conditions. Industry, through CAPP, presented this approach to the CGSB Committee and sought support to include it in the revised standard. The CGSB Committee agreed and directed a thorough review of the proposed test method by the CGSB Working Group. This has been completed and the Working Group is finalizing the approach to the inclusion of the new test in the recommended revised standard.

CGSB Review Process:

The review of the standard is focusing on three areas: performance requirements, drafting and end-user considerations:

- *Performance Requirements:* the standard is being evaluated from the basis that a suit certified against it is expected to either perform in a defined way, or not hinder expected actions required of the individual wearing it. For instance, test methods are being researched and developed to better evaluate the suit for matters such as impacts on mobility; ability to exit a submerged helicopter (including impediments to physical egress and underwater buoyancy requirements); thermal protection (including improved evaluation of water into the suit under realistic sea conditions); material durability and visibility (including colour and retro-reflective material requirements); critical donning, survival and rescue actions.
- *Drafting:* the standard is undergoing thorough review to ensure that the content is up-to-date with respect to matters such as existing research, other related standards, improvements in technology and that the requirements and test methods contained within it are clear, concise and specific.

- *End-user considerations:* The standard review is also addressing some aspects of the use of a suit built to meet this standard. This includes a requirement that the manufacturer provide fitting instructions for the suit system. Additionally, it is recognized that components can be added to a suit system, such as personal locator beacons or breathing devices. The standard is expected to require that where this is intended the suit system must be tested for certification with all additional components.

CGSB Research

Significant research undertakings are associated with this review, including: validation of thermal requirements; more realistic water ingress and escape buoyancy evaluation; cold hand dexterity and hand protection requirements. This research is, as noted below, ground-breaking in the evaluation of buoyancy in underwater egress. Research is being conducted by several researchers at various facilities including Memorial University of Newfoundland; National Research Council – Institute for Ocean Technology facility in St. John's, NL; Dalhousie University in Halifax, NS; and The CORD Group in Dartmouth, NS.

Several areas of this research are highlighted below.

Thermal Requirements:

The standard defines protection limits¹² for impacts from cold shock and the onset of hypothermia. It requires a suit to have a minimum in-water thermal value to meet these protection limits. This value had been derived in the past from models of thermal physiology and provides the defined protection for calm water. The research commissioned to support the review has the objective of determining whether this minimum level of thermal insulation is sufficient to provide the same level of protection in cold air, water, wind and wave conditions. This is ground-breaking research in which humans are being exposed to these conditions and their core temperature monitored.

Other aspects of the test method used to ensure a suit meets the minimum thermal insulation requirement are also being researched and improved, including the development of a much more realistic and thorough water ingress test method as discussed above.

Cold Hand Dexterity:

Research to evaluate hand dexterity in cold water temperatures has been conducted. The objective of the research was to determine whether there is sufficient dexterity in the first

¹² *CGSB 65.17* defines thermal protection limits to protect from the onset of hypothermia as follows: no more than a 2 degree Celsius core body temperature drop in 0-2 degree Celsius water over a six hour period.

few minutes of submersion to allow the undertaking of critical survival actions (i.e. deployment of critical suit components and donning of gloves) or to determine the minimum required hand protection should there not be sufficient hand dexterity maintained. The research found that there is sufficient dexterity maintained to accomplish the required survival actions. Thus, the standard is being prepared with a test method that is intended to ensure that a suit meeting it has components and gloves that are easily deployed and donned within two minutes.

Escape Buoyancy:

Buoyancy and flotation requirements of the suit system are a significant aspect of the commissioned research. Performance expected of a helicopter suit requires that it not be so buoyant that it hinder submerged egress, but does provide for buoyancy and flotation when at the surface. The commissioned research is intended to evaluate what the limits are in the ability of a person to maneuver underwater given the added force of buoyancy. The intent is to present a range of buoyancy limits based upon size that will ensure appropriate maximum buoyancy for escape purposes is achieved. Further, the existing test for escape buoyancy is being evaluated and a new test which would be performance based is under consideration. The new test would require test subjects to perform underwater egress scenarios and considers buoyancy impacts on the test subjects' ability to egress. Other research commissioned for the review includes evaluating the tests used to assess a suit for flotation stability considerations.

Supplemental Underwater Breathing Apparatus

The TSB report recommends that:

- Transport Canada require that supplemental underwater breathing apparatus be mandatory for all occupants of helicopters involved in overwater flights who are required to wear a Passenger Transportation Suit System¹³.

A supplemental underwater breathing apparatus has been in use by the offshore oil and gas workforce in Atlantic Canada since May 2009 and a thorough overview of the implementation process used by industry was provided as part of Phase I of the Inquiry. As an industry we support the carrying of this device on all flights over water where passengers are required to wear a passenger transportation suit system.

Other CAPP Initiatives Related to Offshore Helicopter Safety:

As part of Phase II of the Inquiry, the Commissioner has also requested that parties submit information on any other relevant work in the realm of safety. This section will provide information on several other safety issues CAPP is working on. Given the

¹³ TSB Report, section 4.2.3

number of safety initiatives CAPP is involved in, we will focus only on those that are somewhat related to, or may strengthen, the safety of helicopter transport in this submission.

As an industry, we are committed to continuous improvement in safety performance. CAPP's Atlantic Canada Safety Committee is one venue in which CAPP members discuss safety issues and initiatives and consider safety from a continuous improvement perspective. Highlighted below is a description of CAPP's Atlantic Canada Safety Committee and some of the issues currently being undertaken by the Committee.

Atlantic Canada Safety Committee

CAPP's Atlantic Canada Safety Committee reports to the Atlantic Canada EPG. The Safety Committee is chaired by a member company employee and supported by senior safety employees of member companies with interests in the Atlantic Canada offshore, representatives from local drilling contractors, and CAPP staff. The Committee meets monthly and works on safety related issues and initiatives that affect the broader industry. The Safety Committee meets with the C-NLOPB and CNSOPB formally at least once a year to share information about committee work and seek feedback from the boards.

The Safety Committee and related task forces and working groups reporting into the Safety Committee, are involved in many issues and initiatives. This list of issues changes depending on requests that come to CAPP from the C-NLOPB or CNSOPB or from offshore operators who wish to approach a particular safety issue from an industry perspective as it broadly impacts the industry. Three of these issues are outlined below and may be of interest given their connection to helicopter travel.

<u>Use of Helicopter Underwater Emergency Breathing Apparatus (HUEBA) in Helicopter</u> <u>Underwater Escape Trainer (HUET)</u>

The current HUEBA training program is designed to ensure that risks associated with the training are as low as reasonably practicable. Industry understands that efforts to maximize the fidelity of training can result in increased risk; therefore determining whether or not to use the HUEBA in the HUET requires greater analysis. The Safety Committee will undertake this research with a goal of reaching a training recommendation.

Medical Assessment Guideline

A requirement in Atlantic Canada prior to taking basic survival training and working offshore is to have a medical assessment. It is a requirement that the medical assessment meet or exceed the CAPP *Guide for Medical Assessment for Fitness to Work Offshore*. This Guide provides direction to physicians in conducting an appropriate medical

assessment for the offshore environment. The Guide defines the roles of the operator's medical advisor and of the physician; provides the objective of the assessment and considerations regarding the offshore working environment; and specifies the components required of the assessment itself. CAPP members are in the process of evaluating the guide and possible enhancements in the medical tools presented.

Fatigue Management Best Management Practice

CAPP is developing a Fatigue Management Best Management Practice for the Offshore Petroleum Industry in Atlantic Canada. The purpose of the Best Management Practice is to describe key considerations to be assessed by offshore industry operators and drilling contractors in their determination of appropriate fatigue management measures to be implemented on offshore drilling and production facilities. The document outlines responsibilities for operators related to fatigue management which considers such things as work scheduling; developing a policy, program or plan related to fatigue; and developing programs to educate the workforce about the risks of fatigue and how to minimize these risks.

Conclusion

In conclusion, CAPP is providing the information included in this submission to assist in Phase II of the Inquiry. The intent is to provide up to date information about what industry is doing related to the TSB recommendations which are broadly applicable to the industry and those in which CAPP has a role. Given the response that is already underway following Phase I of the Inquiry, CAPP respectfully submits that no additional recommendations are required by the Commissioner in response to the TSB report.

List of Acronyms

| BST | Basic Survival Training |
|---------|---|
| BST-R | Basic Survival Training Recurrent |
| CAODC | Canadian Association of Oilwell Drilling Contractors |
| САРР | Canadian Association of Petroleum Producers |
| CGSB | Canadian General Standards Board |
| C-NLOPB | Canada-Newfoundland and Labrador Offshore Petroleum Board |
| CNSOPB | Canada-Nova Scotia Offshore Petroleum Board |
| EPG | Executive Policy Group |
| HUEBA | Helicopter Underwater Emergency Breathing Apparatus |
| HUET | Helicopter Underwater Escape Trainer |
| OHSI | Offshore Helicopter Safety Inquiry |
| TQC | Training and Qualifications Committee |
| TSB | Transportation Safety Board of Canada |
| TQSP | Atlantic Canada Offshore Petroleum Industry Standard Practice for the Training and Qualifications of Personnel |