Offshore Helicopter Safety Inquiry
Newfoundland and Labrador • Canada

Review of New Zealand Offshore Petroleum Regulatory Regime

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Newfoundland and Labrador, Canada

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Presented by

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LIST OF ABBREVIATIONS

CAA	Civil Aviation Authority of New Zealand
CAR	Civil Aviation Rules
DOL	Department of Labour
HUEBA	Helicopter Underwater Emergency Breathing Appartus
HUET	Helicopter Underwater Escape Training
NZ	New Zealand
TAIC	Transport Accident Investigation Commission

1 Executive Summary

This report has been prepared in order to enable a comparison of offshore petroleum regulatory regimes for use by the Offshore Helicopter Safety Inquiry (OSHSI), Newfoundland Labrador, Canada. The report is to be read in conjunction with OSHSI publication also prepared by Aerosafe Risk Management *Review of Selected Offshore Petroleum Regimes (May 2010).*

The approach to the regulation of safe offshore petroleum operations varies depending on the country, the state of the industry in that country, the degree of prescription of the regulations, and the method by which the regulators enforce and promote safety. This variation is then manifested in the effectiveness of the regulator and the regulations at creating safe offshore working environments. This report examines the New Zealand offshore petroleum regulatory environment to elicit an overview of the safety standards and safety oversight of the offshore industry and in particular, helicopter transportation to offshore installations.

The New Zealand regulatory regime is a performance based system, which places the employer in the position to ensure the provision of a safe working environment. This is system is overseen by the Department of Labour, who require a "safety case" for the installation activities to be sent to them. The Department of Labour makes comments on the safety case, and carries out inspections to ensure that the safety case is implemented. However the nature of the industry and regulations means that the industry is the key player in ensuring the safety of offshore installations.

There is only one operator currently providing helicopter transportation services to the New Zealand offshore petroleum industry. The operator has been involved in the industry since 1968 and also provides services to the industry in other parts of the world. While the operator complies with the Civil Aviation Rules as enforced by the regulatory government body, the Civil Aviation Authority of New Zealand, there is no guidance from either this Regulator nor the Department of Labour specifically regarding helicopter operations to offshore petroleum installations.

2 Introduction

The regulation of the offshore petroleum industry is a key element in the organizational regime which governs the health and safety of those who work offshore. The regulatory regimes that exist vary significantly between nations, and on some occasions within nations. More than twenty offshore petroleum regulators operate worldwide, each different in the level of oversight, structure, funding regime and the ability to make and enforce regulations. The nature of each regulator depends on a number of factors, such as the sophistication and size of the industry in that area, the degree of involvement each regulator has in the day to day operations offshore, the level of prescription of the regulations and the level of activity each regulator exhibits in creating a safe and healthy working environment for the thousands of people who work in the offshore industry.

2.1 Background

One of the Expert Reports provided to the Commissioner of the Offshore Helicopter Safety Inquiry was the *Review of Selected Offshore Petroleum Regulatory Regimes (May 2010).* This tabletop review provided a high level summary of five regimes from around the world. During the Inquiry it became evident that a similar review of the New Zealand regulatory regime would also be of high value to the Commissioner and the Inquiry. This is primarily due to the size of the New Zealand offshore petroleum industry, which is to some extent comparable to that of the Newfoundland and Labrador offshore petroleum industry.

In order to maintain consistency, this New Zealand focused report was undertaken using the same philosophy and methodology as the previous Expert Report: Review of Selected Offshore Petroleum Regimes (May 2010).

2.2 Objectives

The objective of this report is to provide a summary of the New Zealand offshore petroleum regulatory environment. In particular the following four areas were investigated. They are identical to those used in the previously cited report (May 2010):

1. Regulator overall structure and governance
2. Safety practices and standards
3. Safety organizational structure
4. Standards and practices with respect to helicopter transportation offshore.

3 New Zealand – Department of Labour

The Department of Labour (DOL) is responsible for the ongoing improvement of New Zealand's labour market, with the overall goal of strengthening the New Zealand economy. DOLs responsibilities therefore span the wide ranging areas of sustainable employment, employment relations, immigration, workplace health and safety, accident compensation, labour market analysis and research, managing relations with relevant international bodies, and policy advice.

3.1 Overview

The Department of Labour works towards the following outcomes for New Zealand:

- Improved labour market outcomes for sectors, regions and firms
- All people having the opportunity for meaningful and well–paid employment
- The current and future needs of the labour market are catered for by the skills available
- Workplaces are attractive, innovative and productive
- New Zealand is well represented internationally with respect to labour market, migration and humanitarian issues

New Zealand legislation for workplace health and safety is generally performance based, placing industry in the position of responsibility. The philosophy is to empower the industry to ensure that they are operating within the law without a large number of prescriptive elements. The regulations which apply specifically to the offshore petroleum industry have both prescriptive and performance elements, and are based on a safety case being provided to the DOL.

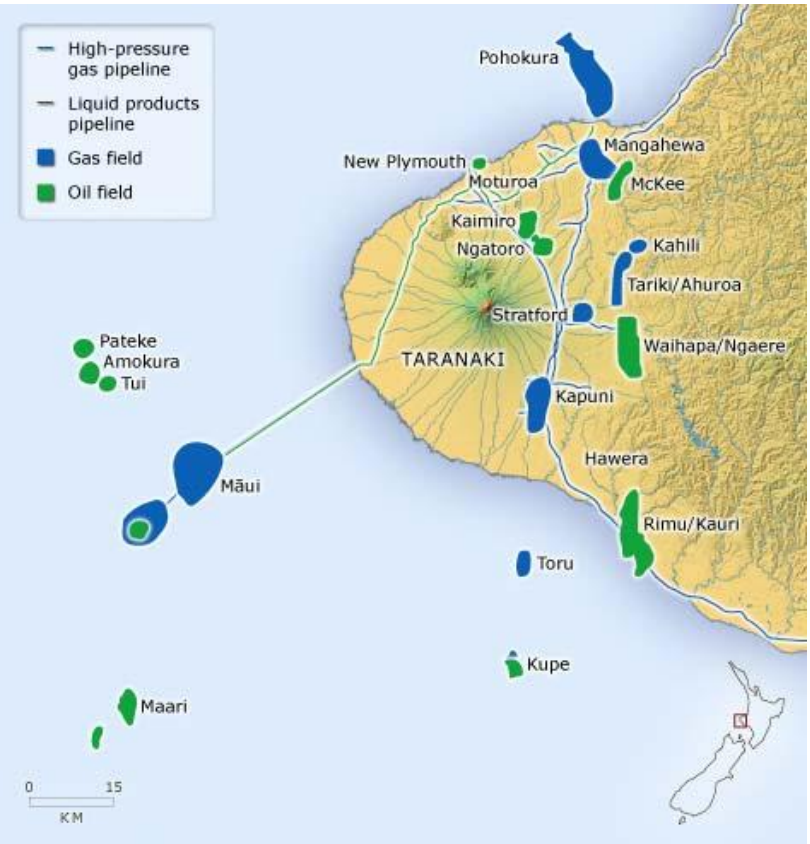
3.1.1 Industry

The offshore oil and gas industry in New Zealand commenced with the Continental Shelf Act 1964, which allowed offshore oil and gas exploration and extraction to commence.

The first location at which gas was discovered, and later drilled in 1969, was the Kapuni gas field, on the western side of the North Island. The Maui oil and gas field, which is still operational today, was also discovered in 1969.

Crown Minerals, within the Ministry of Economic Development, is responsible for managing New Zealand's oil, gas, mineral and coal resources. Crown Minerals reports to the Minister and Associate Minister of Energy and Resources. All exploration and mining permits are issued through Crown Minerals. There are currently eight offshore installations operating off the New Zealand coast and all are in the Taranaki Basin on the western side of the North Island. The location of the oil and gas fields is depicted in Figure 1.

Figure 1 - Offshore oil and gas fields in the Taranaki Basin, New Zealand



The existing number of installations operational in New Zealand is set to expand in the future with the New Zealand Government promoting further exploration and

development of the minerals estate, including petroleum resources. This government activity will include the stimulation of investment in the New Zealand mineral estate through Crown Minerals initiatives such as increasing the availability of seismic data and increasing regulatory effectiveness.

Offshore installations, and a number of other offshore activities in New Zealand, are serviced by HNZ. This helicopter operator has been servicing the Maui field since 1968. HNZ currently provides transportation of offshore petroleum workers in the Taranaki Basin through a joint sharing agreement with the installation operators in the area. The company flies out of New Plymouth airport, where a staff of 30 are based. HNZ use Augusta Westland AW139 and Bell 412 helicopters. The journey to the Maui A installation is approximately 45 minutes from New Plymouth.

3.2 Organizational Structure

The Department of Labour (DOL) is responsible for improving the performance of the New Zealand labour market. The Chief Executive of the DOL is the Secretary of Labour. The Secretary is responsible for carrying out the work as detailed through four Government Ministers: Minister of Labour, Minister of Immigration, Minister for Social Development and Employment, and the Minister for the Accident Compensation Commission. The scope of the work undertaken and the Acts and Regulations overseen and enforced by the DOL is therefore large, with a total staff of approximately 1570 people based in 23 offices.

The DOL is organized into six workgroups: Workforce, Workplace, Work Directions, Corporate, Legal & International, and the Executive Branch. The Workplace Group is responsible for delivering policy and services related to employment relationships, workplace practices and workplace health and safety. The Senior Advisor High Hazards – Petroleum and Geothermal works within the Workplace group to oversee the safety of offshore petroleum, among other types of workplaces.

3.3 Safety Oversight

The DOL administers a number of statutes, however the most significant to ensure the safety of workers is the *Health and Safety in Employment Act 1992*. Under this Act are the *Health and Safety in Employment (Petroleum Exploration and Extraction) Regulations 1999*. The Regulations require the submission of a Safety Case to the DOL prior to any operations. Schedule 4 to the Regulations stipulates the details required of safety cases. The Regulations and this report refer to "employer", meaning "a person who controls a place of work, including the person who controls a place of work at which a contractor or subcontractor works" (Regulations r 3(1))

In addition to the safety case an employer must "take all practicable steps to ensure that the installation is not operated unless there is a current certificate of fitness" in respect of the safety of the installation structure and the equipment necessary for safe operation. (r 28(1)) An alternative means of compliance is the operation of a verification scheme. (r 28(3))

3.3.1 Safety Standards

The *Health and Safety in Employment Act* Part 2 requires that every employer take "all practicable steps" to ensure the safety of employees while at work. This includes developing "procedures for dealing with emergencies that may arise at work" (Section 6 (e)). This term "all practicable steps" is defined to mean "all steps to achieve the result that is reasonably practicable to take in the circumstances" (Section 2A).

The Act requires that employers ensure that there are systems in place to effectively identify hazards to employees at work, and where a hazard is assessed to be significant, the employer take all practicable steps to eliminate it. Where the hazard is unable to be eliminated, that is, it is impracticable to do so, then the employer shall take steps to isolate it from employees. Failing that, the employer shall minimise the likelihood of the hazard, monitor employee exposure to the hazard and provide equipment to employees to protect them from harm that may be caused by, or may arise out of the hazard.

The particulars to be included in the safety case for an installation are, in redacted form:

1. Description of the means by which the employer intends to ensure that the installation will be operated in a manner that will minimize hazards
2. Description of the safety management system, its implementation and audit procedures
3. Details of any significant hazards
4. Details of quantitative risk assessments and consequent measures to minimize hazards
5. Description of the principal features of the design and construction of the installation that will ensure hazards are minimized.
6. Details of the equipment in place to detect and protect workers from the consequences of fire, explosion, heat, smoke, gas and toxic fumes.
7. Demonstration of all practicable steps to be taken to ensure that equipment essential for personnel safety or controlling the consequences of a major accident event will be capable of functioning in fire, explosion, flooding, inclination or strong vibrations
8. A scale plan of the installation and details of the weather and ocean conditions expected in the location, and the properties of the seabed at the installation's location
9. Description of structure and materials of the installation and its plant and equipment.
10. Specifications of the design requirements of the installation, its plant and equipment including safety limitations
11. Specification of the design of the installation, its plant and equipment including codes of practice to be complied with
12. Details of the limits of environmental conditions beyond which the installation cannot safely operate, including the properties of the seabed and subsoil if applicable
13. Particulars of each operation to be carried out

14. The maximum number of petroleum workers expected to be on the installation at any one time, and for those who will require accommodation
15. Provisions to be made for a temporary refuge to prevent significant harm and for facilities capable of operating and monitoring emergency shut down systems and maintaining communication with onshore facilities
16. Systems in place to enable a full and safe evacuation, escape and rescue of petroleum workers in an emergency
17. Details of plant, equipment and procedures for diving support and hyperbaric rescue
18. Statement of the performance standards of the systems in place to enable a full and safe evacuation of petroleum workers, and the period for which the systems can operate in explosion, fire, heat, smoke, gas and toxic fumes.
19. Demonstration that the performance standards used in relation to the installation are adequate in minimizing hazards
20. Details of the frequency and scope of reviews of the safety case

In addition to developing and implementing the safety case, the employer is required by the Regulations to ensure that all petroleum workers are informed of the relevant parts of the safety case and any actions that need to be undertaken to be compliant with the safety case.

The “certificate of fitness” required for each installation (r 28) must be issued by an inspection body recognized by the DOL, thus fulfilling the requirement of r 24. An inspection body is required to be a demonstrated independent person or organisation that operates an effective quality assurance program, and carries out work in an objective fashion that promotes Safety, and is in the interest of the public. The inspection body carries out inspections of installations and equipment fixed or related to installations to determine the safety of the installation and equipment. The inspection body may issue certificates of fitness following the inspection of the installation and equipment, and impose limitations or conditions in the case of non compliance. The certificate of fitness must be valid for all activities and at all times throughout the installation operation. The

maximum period of validity is five years. The details to be included in a Certificate of Fitness are stipulated in Schedule 5 to the Regulations.

An inspection body must be accredited by International Accreditation New Zealand (IANZ) or the National Association of Testing Authorities, Australia (NATA). IANZ is the accreditation body of the Testing Laboratory Registration Council, an autonomous Crown entity which recognizes the conformity of assessing or inspection bodies based on predetermined factors. NATA is a not for profit organisation based in Australia and is responsible for the accreditation of laboratories, inspection bodies and so on.

An alternative method of compliance with Regulation 28 is the operation of a verification scheme. A verification scheme, which conforms to the particulars in Schedule 6 to the Regulations, must be provided to the DOL as well as a demonstration that the verification scheme will be satisfactorily implemented.

In practice, it is slightly more common for installation employers to satisfy Regulation 28 through the provision to the DOL of a certificate of fitness.

3.3.2 Safety Assurance Regime

The safety case is sent to the DOL at least two months prior to the commencement of the construction, operation or abandonment of any installation, where practicable. The safety case is reviewed by the DOL to ensure compliance with the Regulations. The DOL submits comments on the safety case to the employer, typically in a question form. The comments do not necessary have to be acted upon, however they are required to be addressed by the employer. Should an incident occur in which it becomes evident that the comments should have been acted on, then the employer would face enforcement action.

Due to the resources available at the DOL the workplace inspection of offshore petroleum installations is somewhat limited. Generally there is an attempt to visit each

location approximately twice a year. The timing of the inspections does become ad hoc due to varying priority occurrences within DOL.

During these inspections the DOL Senior Advisor is checking whether the employer has taken all practicable steps to ensure that the installation is being operated in accordance with the safety case. The actual certificate of fitness or proof of the verification scheme of the installation is also inspected on these occasions.

The DOL enforcement tools include written warnings, improvement notices, prohibition notices and infringement notices, and for serious non-compliance, prosecution will be taken. Professional judgement of the situation by inspectors determines which tool(s) option is the most appropriate.

3.4 Future rulemaking

With the oil and gas industry in New Zealand set to expand in the near future, recent occurrences in the industry world wide and the fact that the existing Petroleum Exploration and Extraction Regulations are eleven years old, a timely review of the existing regulatory regime of offshore petroleum is on the DOL agenda. The Deep Horizon incident in the Gulf of Mexico has particularly highlighted the potential need for a degree of prescriptive regulations in the offshore petroleum industry. The review is expected to commence in September 2010, and will involve public consultation. While it is not wise to speculate on possible inclusions or changes to the Regulations, the resources currently allocated to the regulation and oversight of the petroleum industry may be increased in order to facilitate these changes.

3.5 Helicopter Operations Oversight

The Civil Aviation Authority of New Zealand (CAA) establishes national safety standards for civil aviation and monitors adherence to those standards. The CAA is also responsible for aviation accident and incident investigations, although some serious

occurrences are investigated by the Transport Accident Investigation Commission (TAIC). There is no formal agreement between the DOL and the CAA with respect to the responsibilities of each agency for offshore helicopter transportation.

Under the *Health and Safety in Employment Act* the definition of a place of work would include the helicopters, which petroleum workers must use or pass through to reach a place of work.. Section 3A clarifies that the Act applies to the aircraft as a place of work. With this definition of a place of work, it is the responsibility then, of the employer to ensure that all practicable steps are taken to provide and maintain a safe environment, and that procedures are developed in order to respond to emergencies while at work. This includes the aircraft.

If a helicopter accident were to occur and the employer was at fault, the CAA would carry out the investigation, or the TAIC if appropriate, and that agency would be able to prosecute if need be, under the *Health and Safety in Employment Act*, as allowed for by Section 28B.

Helicopters travelling to offshore petroleum installations are certified under Civil Aviation Rules (CAR) Part 135. There is no requirement under Part 135 for helicopters or small aircraft travelling over water to be certified for ditching. With that in mind however, there has not been a helicopter ditching while transporting petroleum workers to offshore installations in New Zealand. In addition to this there have been no fatal air transport operations accidents involving fare paying passengers in New Zealand for the last five years. The excellent safety record of New Zealand civil aviation, and the surveillance provided by the CAA is recognized by industry professionals, and in the recent ICAO audit of the CAA.

Only one operator provides helicopter transportation services to offshore installations in New Zealand, HNZ. This company has been involved in servicing the oil and gas industry in New Zealand since 1968. Under Part 119 HNZ requires a general aviation air

operator certificate. In order to fly helicopters to offshore locations under CAR Part 135, HNZ is required to ensure the provision of immersion suits (CAR 135.87).

HNZ is audited every two years by the installation operator, Shell, as a part of its own internal policy regime. This audit covers a wide range of topics, as defined by Shell, and is made available to other oil and gas operators as a part of a joint sharing agreement. The audit includes a review of the helidecks and helideck support facilities at the installations where Shell is an operator. Under the requirements of CAR Part 91 and 135, there are specific standards which a helicopter operator must ensure are in place for an aerodrome/landing site/heliport to and from which an aircraft may operate. HNZ is therefore bound by the Civil Aviation Rules to ensure that the helidecks on the installations are up to the specified standards. Advisory Circular 139-8 provides guidance on acceptable means of compliance with the Rules.

Rebreathers, a form of HUEBA, have been used by operators in the area since around 2006 and have been made mandatory by the petroleum operators for all passengers since 2008. The provision of rebreather and HUET, and the standard of the immersion suits worn by passengers, is driven by the industry, not by either the aviation regulator or the petroleum industry regulator.

4 Conclusion

The offshore petroleum regulatory regime in New Zealand is based on the philosophy that employers are responsible for ensuring that all practicable steps are taken to minimise hazards present at work and provide a safe working environment for employees. The Department of Labour oversees the industry, and requires that an installation safety case is provided to the Department. The Department in turn comments on the safety case. These comments are not binding and the operator is not forced to take the comments into account. The provision of a certificate of fitness for the installation or the implementation of a verification scheme is also required by the Regulations. This is to ensure the safe and appropriate operation of the installation and its associated plant and equipment. Certificates of fitness and approval of the verification scheme are provided by a third party, who is in turn accredited by a New Zealand or Australian Government agency. Surveillance of the industry is primarily through DOL workplace inspections, which are performed approximately once every six months.

The size and complexity of the New Zealand offshore oil and gas industry has meant that safety and performance standards have, to some extent, been led by the industry. The Department of Labour has very limited resources allocated to the oversight of the offshore industry and the regulatory regime is very performance based. Due to the nature of the industry, primarily large oil operators or partnerships of well established operators, have mirrored the NZ safety standards against those from offshore jurisdictions around the world.

The Civil Aviation Authority of New Zealand is the responsible agency for the oversight of offshore helicopter transportation. Its involvement in the offshore petroleum industry has been minimal, primarily because there is only one operator providing services to offshore installations, and the safety record of this operator has been very good over a long period of time. HNZ is audited by Shell every two years, and both the Regulators and the other operators who contract HNZ appear satisfied with this level of oversight. There is no formal arrangement between the Department of Labour and the Civil

Aviation Authority to define responsibilities or initiatives to ensure the safety of offshore helicopter transportation.

A number of factors have culminated to initiate a review of the offshore petroleum regulations in NZ this year. These changes will most likely include the creation of some more prescriptive aspects of the Regulations, and potentially a larger role or level of oversight by the Department of Labour. The existing arrangements have one individual at DOL overseeing the industry. This may not be practicable with an increased number of regulations and a larger industry.

The New Zealand offshore petroleum industry has to this point in time had a good safety record, and the regulatory regime has been effective. The safety performance of the installations and helicopter transportation has been primarily driven by the industry however this may change in the future as the industry expands and regulatory changes are made.

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