

PETRONAS TECHNICAL STANDARDS

HEALTH, SAFETY AND ENVIRONMENT

GUIDELINE

ENVIRONMENT MANAGEMENT IN ARCTIC OFFSHORE OPERATIONS

PTS 60.3002

SEPTEMBER 2011



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PTS 60.3002 – Environment Management in Arctic Offshore Operations (September 2011) has been developed to incorporate PETRONAS Lessons Learnt, Best Practice and new information issued by relevant industry code and standards.

The custodian of this PTS is: Manager - HSE MS, Standards & Regulations, GHSED.

Please direct any questions regarding this PTS to the above-mentioned.

Document Approval

	Name	Designation	Date	Signature
Prepared	Azlina Khairi	Staff, Environmental Management, PETRONAS Carigali Sdn Bhd	30/9/2011	
Technical Approved	Lee Tzee Wan	Custodian, Environmental Management, Group HSE Division	4/10/2011	
Verified	Maureen Song Chai Kee	General Manager, Group HSE Strategy and Performance, Group HSE Division	14/10/11	
Approved	Mohd Tarmizi Bin Munir	Head, Group HSE Division	18/10/11	

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PREFACE

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Acknowledgement

This document was jointly prepared with contribution from the following persons:

- | | |
|-----------------------------|----------------|
| 1. Abdul Malek Ahmad | PCSB - PEX |
| 2. Jimat Bolhassan | PCSB - DSE |
| 3. Wan Azlina Wan Aziz | PCSB - DSE |
| 4. Nurul Akmar Amran | PCSB - DSE |
| 5. Nooreen Firdaus M Yahaya | PCSB - CHSE |
| 6. Azlina Khairi | PCSB - CHSE |
| 7. Wong Quin Li | E&P EVP Office |

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1.0 FOREWORD

Growing hydrocarbon demand has seen the oil and gas industry pushing itself into discovering potential reserves that are situated at remote places and environmentally sensitive areas such as the Arctic. In 2008, the US Geological Survey had published findings on undiscovered oil and gas north of the Arctic Circle and estimated that up to 412 billion BOE are yet to be found.

There is a strict environmental management requirement in the Arctic. Since operating in Arctic is relatively new to PETRONAS, a standard guideline is essential to ensure that PETRONAS activities in such environmentally sensitive area are properly managed. In addition, availability of such guideline will enhance stakeholders trust in PETRONAS as a responsible operator, boost PETRONAS image and reputation and increase chances of being regarded as a preferred Partner.

This guideline is designed to provide information on the general characteristics of the Arctic environment, the potential impacts associated with upstream offshore operations and the legal and other requirements that needs to be fulfilled to ensure that the risks are managed to as low as reasonably practicable.

2.0 INTRODUCTION

2.1 BACKGROUND

The Arctic is typically known as the area surrounding the North Pole. There is no universally accepted definition of 'Arctic' but for these Guidelines, the definition refers to the one used by the International Association of Oil and Gas Producers (OGP) in the Oil and Gas Exploration & Production in Arctic Offshore Regions – Guideline for Environmental Protection 2002. This covers the Arctic Ocean and its seas and adjoining water bodies prone to extensive permanent or seasonal ice cover, with an area coverage of approximately 15.5 million km², including the Bering, Chukchi, East Siberian, Laptev, Kara, White, Barents, Norwegian, Greenland, Labrador, Beaufort Seas, the northern Sea of Okhotsk, Hudson and James Bay and the Davis Strait. The Arctic landmass and marine (Figure 1) is shared by 8 countries – Canada, Russia, Finland, Greenland/Denmark, Iceland, Norway, Sweden and the United States. The marine environment is rich in hydrocarbon deposits and to date all known deposits are contained in sedimentary basins on the shelf. In parts of Alaska, Canada and Siberia, oil exploration and production has been ongoing for many years.

The main defining features of Arctic natural environment are climate, seasonal variation, water and atmospheric circulation patterns, permanent and seasonal ice cover, and its biodiversity. Arctic is generally viewed as an environmentally sensitive area and as such there is a strict requirement for managing environment while undertaking activities within the area.



Figure 1: Arctic landmass and marine

2.2 OBJECTIVE

The objectives of this Guideline are:

- To establish a compilation of best practices from internationally accepted guidelines that aimed to minimise adverse impacts on the Arctic environment during the conduct of oil and gas activity
- To provide information on the unique features and characteristics of the Arctic region
- To outline the major environmental aspects, potential impacts and control measures associated with oil and gas exploration and production in the Arctic

2.3 SCOPE

The scope of this guide:

- Mainly for upstream operations at offshore locations – from exploration to abandonment
- Outlining legal and other requirements relevant to oil and gas explorations
- As a basis for future reference and source of information for operating in Arctic by other PETRONAS Business Sectors

2.4 LEGAL / OTHER REQUIREMENTS

2.4.1 ARCTIC COUNCIL

Arctic is governed by respective countries law and regulations according to their portion. In addition, these countries have formed a high level intergovernmental forum, the Arctic Council, which provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people in Arctic. The council has established five working groups:

1. Arctic Monitoring and Assessment Program (AMAP) studies the impact of pollutants in the Arctic (<http://www.amap.no>)
2. Emergency, Prevention, Preparedness and Response Program (EPRR) develops emergency response strategies including for marine oil spill (<http://eprp.arctic-council.org>)
3. Protection of the Arctic Marine Environment (PAME) works on marine pollution guidelines and prevention (<http://www.pame.is>)
4. Conservation of Arctic Flora and Fauna Program (CAFF) works on species and habitat protection including protected areas (<http://www.caff.is>)
5. Sustainable Development Program (SD) concentrates on the socio-economic dimension of pan-Arctic co-operation including resource utilisation

2.4.2 REGIONAL GUIDELINES RELEVANT TO OIL AND GAS INDUSTRY IN THE ARCTIC ISSUED BY ARCTIC COUNCIL

1. Field Guide for Oil Spill Response in Arctic Waters, 1998, Arctic Council

The Guide provides practical oil spill response strategies and tools for application to open water, ice and snow conditions in remote areas during cold weather. It describes the operational difficulties particular to oil operations in the Arctic marine environment, summarises Arctic marine safety hazards and gives useful information on the characteristics of the various coastal zones, shoreline types, ice seasons and tidal ranges in the circumpolar Arctic.

2. Arctic Offshore Oil and Gas Guidelines, Arctic Council, 1997

The Guidelines covers operational planning and impact assessment, local and indigenous peoples' cultural values and communities, environmental monitoring, operating practices, and site clearance and decommissioning.

3. Guidelines for Environmental Impact Assessment (EIA) in the Arctic, Arctic Council, 1997

The Guidelines summarise tasks required for an effective Arctic EIA including the need for Arctic threshold and sensitivity criteria, impact predictions and evaluations, monitoring and mitigation, and public participation. It also identifies sensitive sites (e.g. ice-edges, coastlines) and those areas that require particular care for biodiversity or cultural traditions (e.g. marine mammal harvest areas, seal 'pupping' or polar bear 'denning' zones).

2.4.3 INTERNATIONAL CONVENTIONS AND AGREEMENTS TO PROTECT THE ARCTIC MARINE ENVIRONMENT

1. United Nations Convention on the Law of the Sea (UNCLOS)

This Convention establishes rules governing uses of the ocean and their resources and a classification system for coastal ocean zones and maritime jurisdiction around maritime countries.

2. International Convention for the Prevention of Pollution from Ships (MARPOL)

This Convention restricts vessel discharges of harmful substances and defines areas in need of special protection from maritime activities

3. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention 1972)

Aim to control the deliberate disposal of waste from ships and aircraft into the sea.

4. Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR)

This Convention calls on States to prevent and eliminate pollution, protect marine ecosystems and safeguard human health