

# Managing HSE Standards in PETRONAS Carigali Case for Standardization

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# Managing HSE Standards in PETRONAS Carigali

## OUTLINE OF PRESENTATION

- Background Information
  - PETRONAS and PETRONAS Carigali
- PETRONAS Carigali HSE Management System
- Key influence in PETRONAS Carigali HSE Standards
  - Legislation
  - Regulatory/Contractual Requirement
  - PETRONAS Technical Standards
  - Industry Standards and Best Practices
- Case for Standardization
  - Challenges and Success Stories
- Way Forward

# PETRONAS

Fully-integrated oil and gas corporation, ranked among FORTUNE Global 500's largest corporations in the world

- Business encompass the full spectrum of oil and gas operations:
  - upstream oil and gas exploration and production (E&P);
  - downstream oil refining, including marketing and distribution of petroleum products;
  - gas processing and liquefaction, including marketing of liquefied natural gas (LNG);
  - petrochemical manufacturing and marketing;
  - gas transmission pipeline network operations; and
  - trading, shipping and property investment.
- Headquarters in Malaysia; presence in some 34 Countries (Asia, Middle East, Africa, Europe and South America).
- PETRONAS CARIGALI – Exploration and Production (E&P) arm of the Corporation.

# PETRONAS CARIGALI

Wholly Owned E&P Subsidiary of PETRONAS

- **Presence in 24 Countries**

East & Central Asia, Middle East, Africa and South America.

- **Production Operations**

Malaysia, Indonesia, Mauritania, Myanmar, Pakistan, Sudan, Turkmenistan and Vietnam.

- **Exploration Activities**

Algeria, Angola, Benin, Chad, Cameroon, Cuba, Egypt, Equatorial Guinea, Ethiopia, Iran, Morocco, Mozambique, Niger, Philippines, Timor Leste, Uzbekistan and Yemen.

# Managing HSE Standards in PETRONAS Carigali INTRODUCTION

- **HSE Policy and Strategy**

Common Standard, Global Application, Beyond Compliance.

- **Global HSE Management System**

Common HSE Standards; part of an integrated business management system including, amongst others, Operations Management System, Integrity Management System, Etc.

- **Regulatory Requirement**

Beyond Compliance; Malaysia Legislation (modeled along UK HASAWA 1974) as baseline requirement in HSE Management System.

- Consistency of HSE Standards, including for Joint Ventures and Service Providers.

# Managing HSE Standards in PETRONAS Carigali

## HSE MANAGEMENT SYSTEM

### HSE MANAGEMENT SYSTEM

#### Principal System Documentation

- HSE Management System Manual

#### Company Procedures and Guidelines

- Occupational Health and Hygiene
- Occupational and Process Safety
- Environment Management

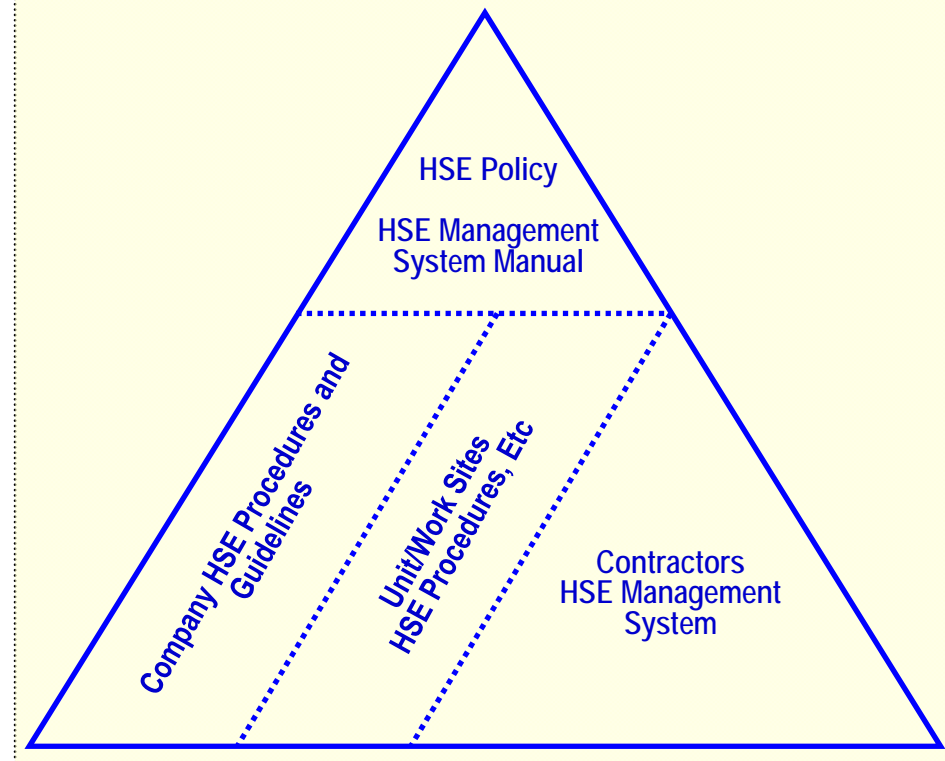
#### Unit/Work Site Procedures, Etc

- Operation HSE Cases
- Matrix of Permitted Operations
- Permit to Work Procedures
- Environment Management Plan

#### Contractors HSE Management

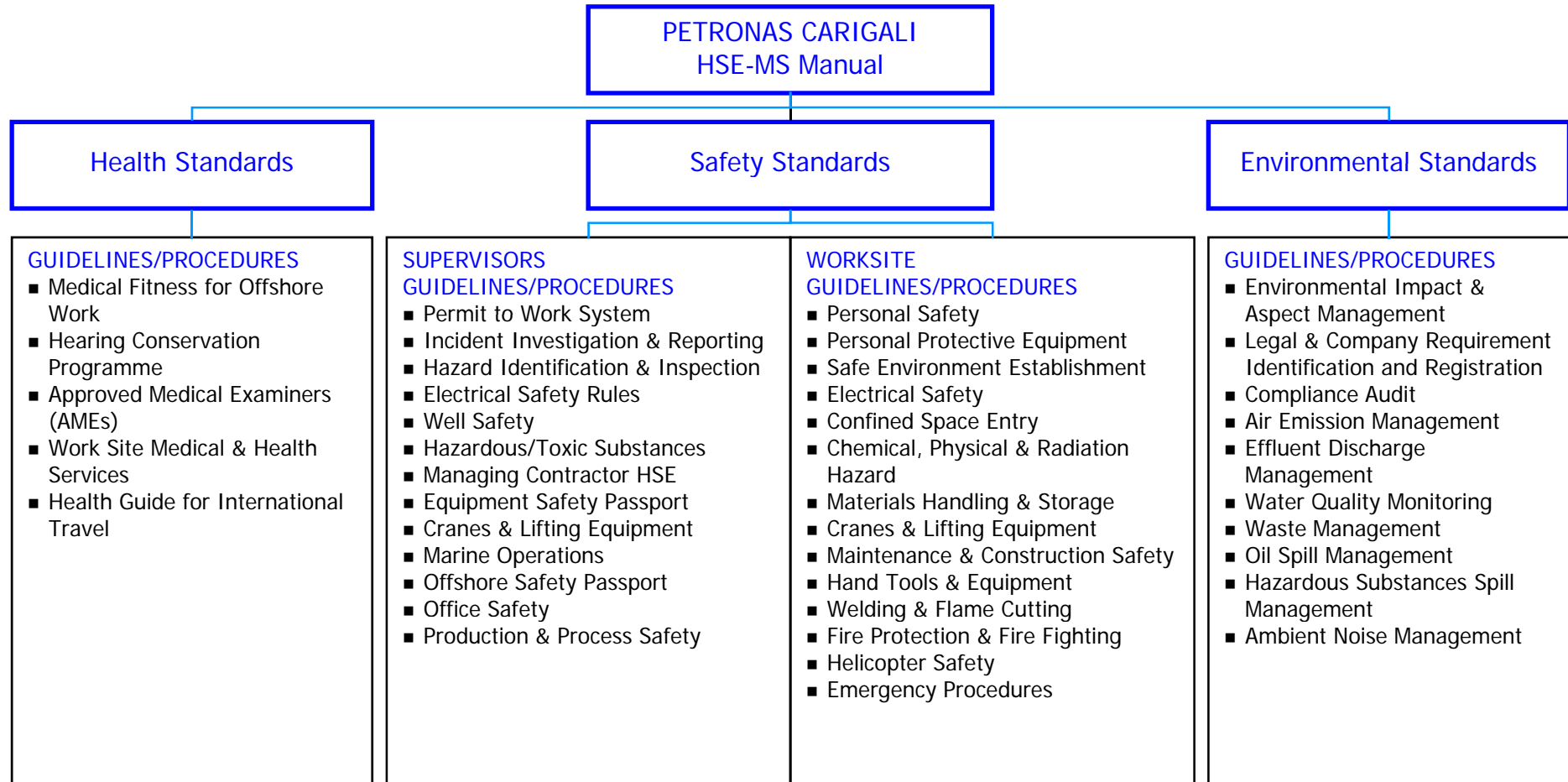
- Conform to Industry Best Practices

### HSE Management System - Documentation Structures



# Managing HSE Standards in PETRONAS Carigali

## HSE STANDARDS DOCUMENTATION



# Managing HSE Standards in PETRONAS Carigali

## FACTORS INFLUENCING COMPANY STANDARDS




### **National and International Legislation and Standards**

- National Legislation in Malaysia, as well as in countries where PETRONAS Carigali operates.
- PETRONAS Management Unit – regulatory authority for all Production Sharing Contractors (Oil and Gas Companies) in Malaysia.
- PETRONAS Technical Standards on Health, Safety and Environment.
- National and International Standards Organization, as well as Oil & Gas Industry Organization.

# Managing HSE Standards in PETRONAS Carigali LEGISLATIVE COMPLIANCE

## LEGISLATIVE REQUIREMENT, MALAYSIA

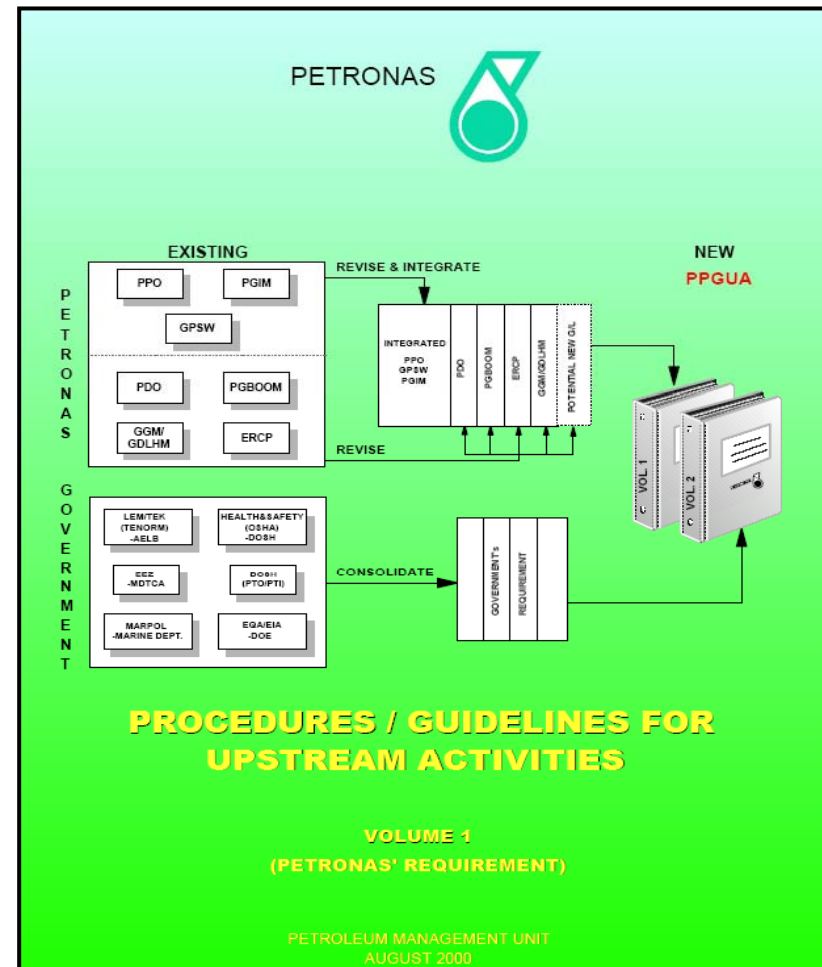
- Factories and Machinery Act 1967 (Revised 1974)
- Environmental Quality Act 1974
- Petroleum Act (Safety Measures) 1984
- Occupational Safety and Health Act 1994

<p style="text-align: center;">ACT 139 FACORIES AND MACHINERY ACT 1967 (REVISED - 1974)</p> <p>Long Title</p> <p>An Act to provide for the control of factories with respect to matters relating to the safety, health and welfare of persons therein, the registration and inspection of machinery and for matters connected therewith.</p> <p style="text-align: right;">[1 February 1970, P.U. (B) 5/1970]</p> <p style="text-align: center;">PART I - PRELIMINARY</p> <p><b>Section 1. Short title.</b></p> <p>(1) This Act may be cited as the Factories and Machinery Act 1967.</p> <p>(2) (Ombud).</p> <p>(3) The Minister may by order suspend<sup>1</sup> the operation of the whole or any of the provisions of this Act in any State and may at any time thereafter remove the suspension.</p> <p><b>Section 2. Interpretation of "factory".</b></p> <p>(1) In this Act, unless the context otherwise requires, "factory" means any premises or part of a premises where—</p> <p>(a) within the close or curtilage or precincts of the premises or part thereof persons are employed in manual labour in any process for or connected with or incidental to the making, altering, repairing, ornamenting, sorting, finishing, cleaning, washing, breaking, demolishing, constructing, reconstructing, fitting, refitting, adjusting or adapting of any article or part thereof; and</p> <p>(b) the said work is carried on by way of trade for the purposes of gain or incidentally to any business so carried on</p> <p>and (whether or not they are factories by reason of the foregoing definition) the expression factory also includes the following premises in which persons are employed in manual labour:</p> <p>(i) any yard or dry dock (including the precincts thereof) in which ships or vessels are constructed, reconstructed, repaired, refitted, finished or broken up;</p> <p>(ii) any premises in which the business of washing or filling bottles or containers or packing articles is carried on incidentally to the purposes of any factory.</p>	<p style="text-align: center;"> LAWS OF MALAYSIA</p> <p style="text-align: center;">ACT 127 ENVIRONMENTAL QUALITY ACT 1974</p> <p style="text-align: center;">Incorporating latest amendment - Act A 1102/2001</p> <p>Date of Royal Assent: 09 March 1974 Date of publication in the Gazette: 14 March 1974 Date of coming into operation: 18 April 1974 (P.U. (B) 113/74)</p> <p style="text-align: center;">ARRANGEMENT OF SECTIONS</p> <p><a href="#">Long Title &amp; Preamble</a></p> <p><b>PART I - PRELIMINARY</b></p> <p>Section 1. <a href="#">Short title, commencement and application.</a> Section 2. <a href="#">Ombudsman.</a></p> <p><b>PART II - ADMINISTRATION</b></p> <p>Section 3. <a href="#">Director General and other officers.</a> Section 4. <a href="#">Establishment of the Environmental Quality Council.</a> Section 5. <a href="#">Functions of the Council and its committees.</a> Section 6. <a href="#">Classification, registration and location of effluents.</a> Section 7. <a href="#">Pollution of streams, rivers, canals, estuaries and waters.</a> Section 8. <a href="#">Pollution of air at various places.</a></p>	<p style="text-align: center;"> LAWS OF MALAYSIA</p> <p style="text-align: center;">ACT 302 PETROLEUM (SAFETY MEASURES) ACT 1984 (REPRINT - 2001)</p> <p style="text-align: center;">Incorporating latest amendment - Act A837/1987</p> <p>Date of Royal Assent: 27 June 1984 Date of publication in the Gazette: 28 June 1984 Date of coming into operation: 01 January 1985 (Temporary Orders (P.O.) 18, 20, 21, 22 and 23 (P.U. (B) 1985) and any 1985 (Temporary Orders (P.O.) 1, 2, 3, 4, 5, 6, 7, 8 and 9 (P.U. (B) 1985))</p> <p style="text-align: center;">ARRANGEMENT OF SECTIONS</p> <p><a href="#">Long Title &amp; Preamble</a></p> <p><b>PART I - PRELIMINARY</b></p> <p>Section 1. <a href="#">Short title, commencement and application.</a> Section 2. <a href="#">Interpretation.</a></p> <p><b>PART II - TRANSPORTATION OF PETROLEUM BY ROAD AND RAILWAY</b></p> <p>Section 3. <a href="#">Permitted conveyance of petroleum by road or railway.</a> Section 4. <a href="#">Power of Minister to make regulations.</a> Section 5. <a href="#">Compliance in the interests of the officers of the Act and the regulations related officers.</a></p> <p><b>PART III - TRANSPORTATION OF PETROLEUM BY WATER</b></p> <p>Section 6. <a href="#">Permitted loading, unloading and discharging of petroleum.</a> Section 7. <a href="#">Fire and other safety precautions.</a> Section 8. <a href="#">Provisions in respect of vessels carrying petroleum.</a> Section 9. <a href="#">Provisions in respect of petroleum in storage or in 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href="#">Appointment of officers in respect of petroleum.</a></p> <p><b>PART III - NATIONAL COUNCIL FOR OCCUPATIONAL SAFETY AND HEALTH</b></p> <p>Section 8. <a href="#">Establishment of the Council.</a> Section 9. <a href="#">Membership of the Council.</a> Section 10. <a href="#">Second Committee to Report.</a> Section 11. <a href="#">Functions and Powers of the Council.</a> Section 12. <a href="#">Appointment of Secretary to the Council.</a> Section 13. <a href="#">Secretaries.</a> Section 14. <a href="#">Annual Report.</a></p> <p><b>PART IV - GENERAL DUTIES OF EMPLOYERS AND SELF-EMPLOYED PERSONS</b></p>
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# Managing HSE Standards in PETRONAS Carigali PRODUCTION SHARING CONTRACT

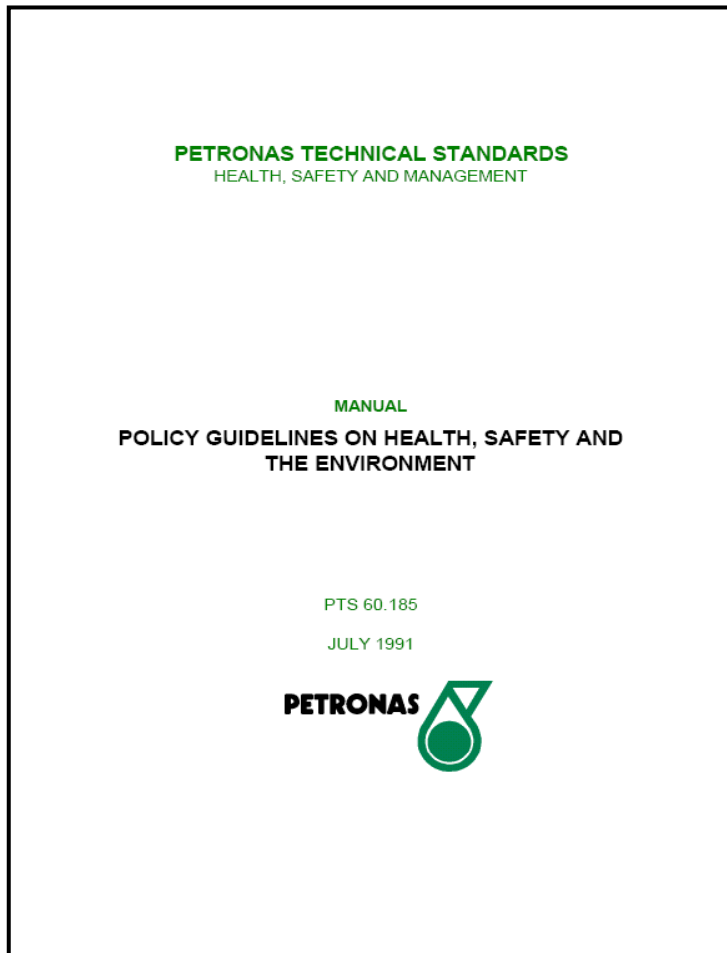
## PETRONAS PROCEDURES AND GUIDELINES FOR UPSTREAM ACTIVITIES (PPGUA)

- Exploration Activities
- Project Development
- Inspection & Maintenance of Production Facilities
- Production Operations
- Management of Health, Safety and Environment
- Platform Abandonment



# Managing HSE Standards in PETRONAS Carigali

## PETRONAS TECHNICAL STANDARDS



Group Standards, covering 8 distinct areas, as follows:

- Design Engineering Practice
- Project Management
- Operations Management
- Maintenance Management
- Materials Management
- Health, Safety and Environment Management
- Quality Assurance
- Laboratory Management

## Managing HSE Standards in PETRONAS Carigali PETRONAS TECHNICAL STANDARDS

- Repository of experienced-based knowledge acquired during design, construction, operation and maintenance of processing units and facilities.
- Benchmark to national and international standards, and codes of practice.
- Define recommended standard for good technical practices to be applied by PETRONAS Group of Companies, to achieve maximum technical and economic benefit from standardization.

# Managing HSE Standards in PETRONAS Carigali

## INDUSTRY STANDARDS



## Industry Standards

- Standard and Industrial Research Institute of Malaysia (SIRIM)
- International Association of Oil and Gas Producers (OGP)
- International Organization for Standardization (ISO)
- American Petroleum Institute (API)
- Energy Institute (formerly Institute of Petroleum)

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION

## Why Standardize?

- Global Presence, International Work Force
- Stake Holders Expectation, both Internal and External
- Branding, Competitive Advantage
- Good Business

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION, KEY CHALLENGES

## **KEY CHALLENGES**

### **Human Capital, Diverse Cultural Background**

- Engagement and Training of Employees with diverse cultural background, including HSE.

### **Joint Venture Partners, Varying HSE Culture**

- JV Partners of varying HSE culture; needs for learning and/or influencing of Joint Venture Partners towards common HSE goals.

### **Service Providers/Contractors**

- Use of Service Providers/Contractors with diverse HSE commitment; resulting in inconsistent HSE performance.

### **Local Infrastructure, Varying Standards**

- Lack availability of local infrastructure to effectively support HSE standards; e.g. training facilities, medical services, etc.

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION, KEY CHALLENGES

## KEY CHALLENGES

### Legislation - Overly Prescriptive Regulation vs Industry Expectations

- **Regulations should be based on good science**  
Industry obligation to cooperate with governments to conduct the necessary research to provide that science.
- **Prescriptive and performance-based regulations**  
Enhanced cooperation to create a balance between prescriptive regulations and performance-based regulations.
- **Risk-based and performance-based systems**  
Challenge for regulators - decision on whether an operator is in compliance requires a degree of judgment that, in turn, requires a high degree of training on the part of regulators.

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION, SUCCESS STORIES

## STANDARDIZATION

### Cases of Alignment of PETRONAS Carigali to International Standards and Industry Best-Practices

- **HSE Standards**

Global HSE Management System based on the OGP; including key HSE procedures and guidelines.

- **Competency Assurance System**

Common standards on competency requirement, for both trades and HSE competencies; benchmarked to industry best-practices.

- **Joint Venture Partners, Varying HSE Culture**

Learning from and influencing of Joint Venture Partners towards common industry-standard HSE goals; an HSE policy and is a key business agenda.

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION, SUCCESS STORIES

## STANDARDIZATION

### Cases of Alignment of PETRONAS Carigali to International Standards and Industry Best-Practices

- **Local Infrastructure, Varying Standards**

Amongst others, collaboration with other Oil and Gas Companies, including local service providers, in set-up of HSE Training Facility conforming to industry standards (e.g. OPITO, UKOOA, Etc)

- **HSE Legislation**

Collaborative engagement with national government in the formulation of HSE legislation; e.g. Malaysia's HSE Case Regulation (under development).

# Managing HSE Standards in PETRONAS Carigali CASE FOR STANDARDISATION, SUCCESS STORIES

## Win-Win collaboration with Contractors towards sustained improvement in HSE Culture

- 2003 and 2004 : Work together with some 60 key Contractors, in Malaysia and Vietnam, formalizing respective HSE Management System and associated documentation.
- Verification of conformance to “OGP Report 6.36/210 Guidelines for the Development and Application of Health, Safety and Environment Management System”, as basis of conformance to PETRONAS Carigali requirement.
- Effective 1 Jan 2005 : Formalized HSE Management System a contractual requirement.



# Managing HSE Standards in PETRONAS Carigali WAY FORWARD, AN INSIGHT

## **Oil and Gas Companies, including Service Providers/Contractors**

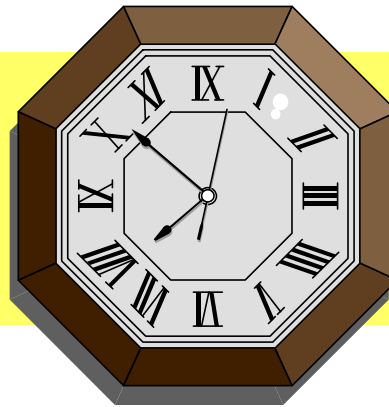
- Establish HSE standards, aligning these to international standards and industry best practices.
- Fundamental commonality in HSE standards amongst Oil and Gas Companies would have significant ripple effect throughout the industry, including amongst Service Providers/Contractors.

## **Standards and Industry Organization**

- Through strategic engagement with the industry, as well as Regulatory Authorities, work towards motivating the adoption of common HSE standards amongst players in the Oil and Gas Industry.

## **Legislator/Regulators**

- Through industry collaboration, work towards enhancing the balance between prescriptive regulations and performance-based regulations.



End  
Thank You

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