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# Decommissioning and Restoration – Fostering Excellence through Regulations, Innovation, and Sustainable Practices

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# Enhancing Offshore Decommissioning Efficiency: Strategies for Effective Pre-Execution Preparations

Teh See Yee

PETRONAS CARIGALI MALAYSIA

# Introduction

- **Offshore facilities decommissioning pre-execution preparation**: Activities and processes conducted on the surface structures and facilities before wells' P&A and decommissioning of offshore installations.

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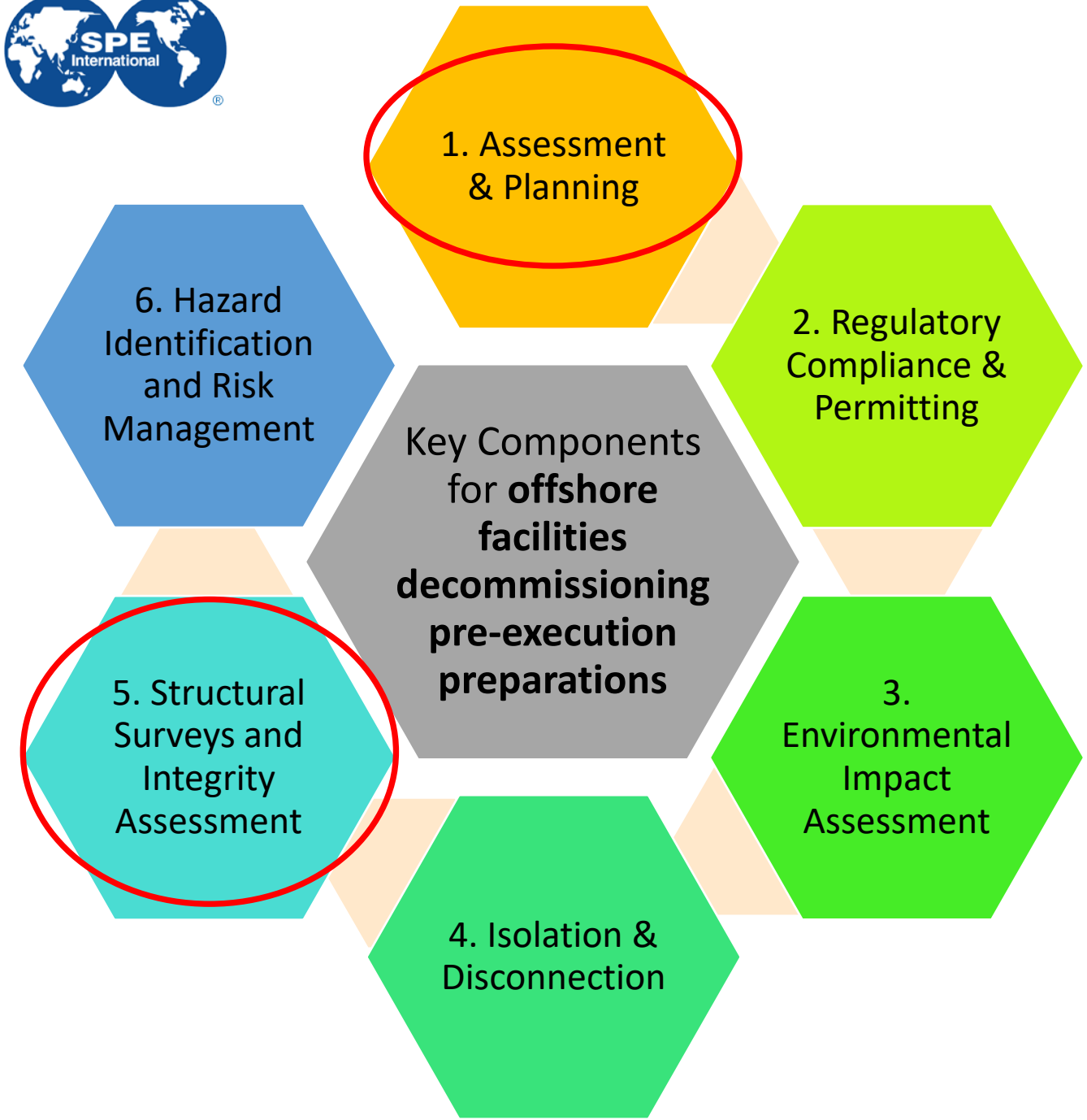


- Focus on offshore facilities decommissioning pre-execution preparations for:
  1. *Wells' P&A*
  2. *Facilities removal*
- **Challenges** of offshore decommissioning pre-execution preparations
- Effective pre-execution preparations **strategies**

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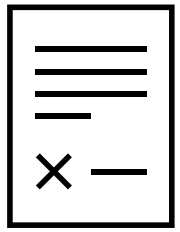
# Importance of Effective Offshore Decommissioning Pre-Execution Preparations

1. Safety


2. Environmental Protection

3. Regulatory compliance



4. Cost optimization & cost compression

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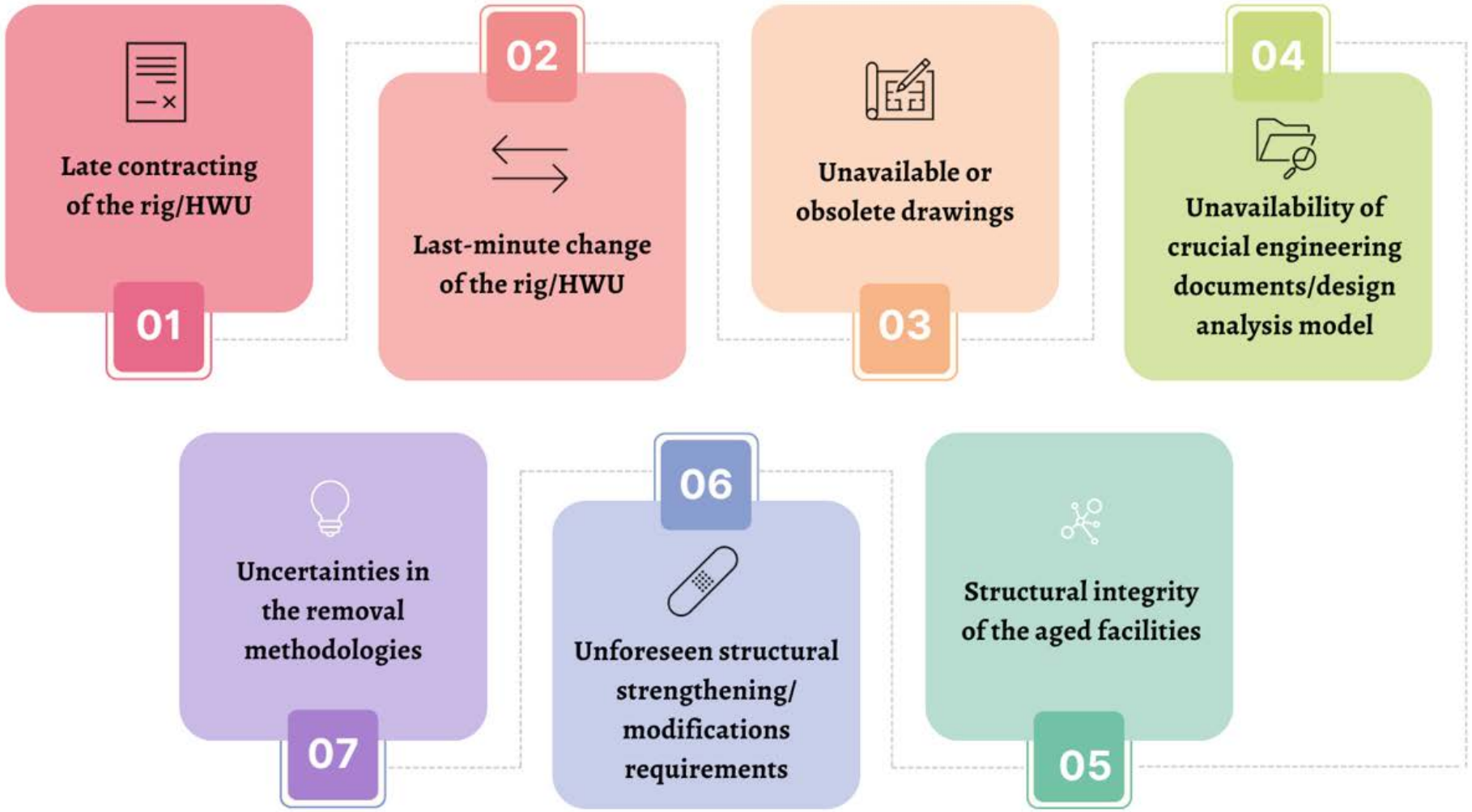
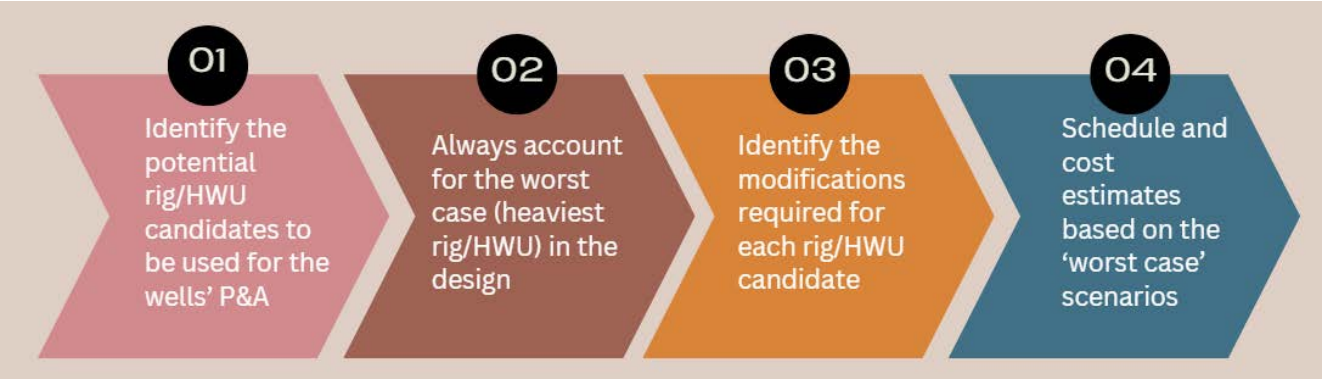
# Addressing Common Challenges



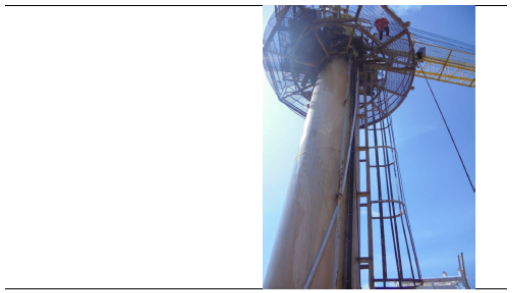
# *Challenge #1 & #2:*

- ***To mitigate the late contracting of the rig/HWU, engineers should always account for the worst-case scenario in the design, schedule, and cost estimates.***
- ***It's crucial to know the platform limitations when facing a last-minute change of the rig/HWU.***




**KNOW your platform**

1. Platform design loads
2. Critical/ Governing elements
3. Potential restrictions/ protrusions

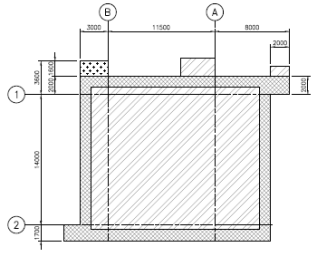


Location: Crane Pedestal

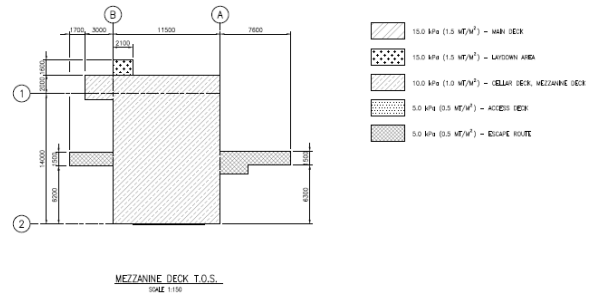
Remarks: Cagged ladder, cable ladder, diesel piping and crane working platform to be removed

Location: Lower Deck Module 2

Remarks: Area was congested with piping and xmas tree.



MAIN DECK T.O.S.



MEZZANINE DECK T.O.S.

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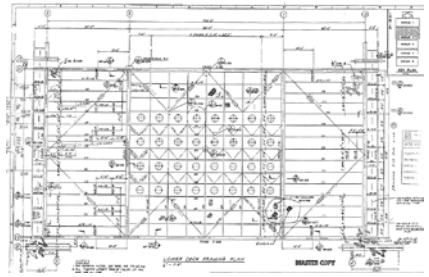
# Challenge #3 & #4:

- ***Re-generate the as-built drawings and perform a thorough site visit if the drawings are found unavailable or obsolete.***
- ***Poor data management necessitates the regeneration of crucial engineering documents and design analysis models.***



**Re-generate** the as-built drawings via:

- Laser scanning
- 3D modelling (if available)
- Analysis model (if available)

Crucial engineering documents regeneration exercise (e.g. Weight Control Report)

Design analysis models regeneration exercise

Best estimates based on database and engineering judgement

**Perform thorough site visit**

- Identify equipment locations
- Identify spool locations
- Identify flushing points
- Identify strengthening locations
- Identify cutting locations
- Identify wells P&A equipment placement on platform

Location: Module 2 Lower Deck

Remarks: Both firewater pump P-210A/B were removed.

# *Challenge #5 & #6:*

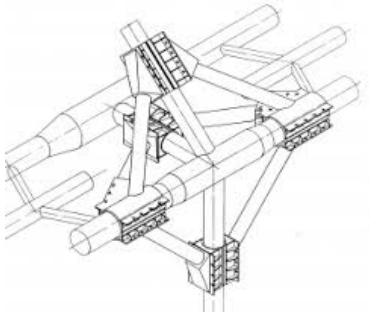
- ***It's the asset owner's responsibility to upkeep their facilities even post-COP***
- ***Fit-for-purpose solutions and optimization are required to avoid unforeseen structural strengthening or modification works.***

Refinement and revalidation of topside loadings

Reduction of conservatism in resistance modelling

Restriction of Open Area Live Loads (OALL) on the affected deck area

Topside Strengthening (to consider advanced repair method)



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# *Challenge #7:*

## *Explore various facility removal options when dealing with uncertainties in the removal methodologies*

- Explore different cutting points due to various crane/ JUR limitations
- Reversed installation methods or otherwise
- Identify potential threads early in the project and be ready with solutions i.e., unavailability of internal cutting tools, grouting integrity issues, launch cradles limitations, etc.

# Conclusions

- **Assessment & planning:**
  - **Early engineering** for asset decommissioning- as early as greenfield development
  - **Integrated engineering contract** for decommissioning execution covering both wells' P&A and facilities removal
  - **Streamline** the surface preparations activities for structural scopes to cater for both wells' P&A and facilities removal
  - Consider **cost optimization** by considering cross-border resource sharing in ensuring continuous resource utilization

- **Structural survey & integrity:**
  - **Proper maintenance** of the facilities by asset owners (periodic inspections & maintenance, periodic underwater inspection)
  - **Fit-for-purpose solutions and optimization** are required to avoid unforeseen structural strengthening or modification works.

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