Compliance Assessment on Noise and Hazardous Chemicals Exposure Regulations: Malaysia's Multinational Oil and Gas Company's Experience

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PETRONAS, Malaysia
PETRONAS

- Incorporated on August 17th, 1974
- Comprises more than 170 wholly-owned and partly-owned subsidiaries, and associated companies
- The only company in South East Asia listed on the Fortune Global 500
- Presence in 31 countries
PETRONAS

- Wide spectrum of petroleum activities, including:
  - oil and gas exploration and production
  - oil refining
  - marketing and distribution of petroleum products
  - trading
  - gas processing and liquefaction
  - gas transmission pipeline networks operations and marketing of liquefied natural gas
  - petrochemical manufacturing and marketing
  - shipping
PETRONAS

- With the nature of PETRONAS’ operations, exposure to noise and hazardous chemicals is unavoidable
- PETRONAS takes every necessary precautions to control the risks
Noise & Hazardous Chemicals Exposure Regulations in Malaysia

- **Noise Exposure Regulations:**
  - Established in 1989, under the Factories & Machinery Act

- **Specific hazardous chemicals exposure regulations:**
  - Lead (1984)
  - Asbestos (1986)
  - Mineral dust (1989)

- **Generic regulations on hazardous chemicals:**
  - Use and Standards of Exposure to Chemicals Hazardous to Health (USECHH) Regulations 2000
Noise & Hazardous Chemicals Regulations: PETRONAS’ compliance assessment
Aim & Objectives

Aim:
- continuous protection of workers’ health & safety
- ensure compliance to HSE regulations
- preserve PETRONAS’ image as a responsible & caring company

Objectives:
- identify strengths and areas for improvement
- recommend practical solutions
- ensure continuous implementation
Scope of Assessment

- Malaysian domestic operations
- Wholly and partly-owned subsidiaries
- Total: 24 plants
Methodology

1. Acquiring management commitment
2. Checklist development
3. Self-assessment
4. Assessment by corporate team
Methodology

1. Acquiring management commitment:
   - Present project’s terms of reference to the Plant Managers committee
   - Communicate to relevant departments of each plant, including HSE department
Methodology

2. Checklist Development
   • Develop checklists based on the regulatory requirements (element by element)
   • Point system (2: full compliance; 1: partly complied; 0: zero compliance)
   • Objective: to categorize and focus on areas that need extra attention
Methodology

Checklist for Noise Regulations Assessment (key elements):

• Permissible Exposure Limit
• Exposure Monitoring
• Methods of Compliance
• Hearing Protection Devices
• Audiometric Testing Programme
• Employee Information and Training
• Warning Signs
• Records Keeping
Methodology

- Checklist for Hazardous Chemicals Regulations Assessment (key elements):
  - Identification of Chemicals Hazardous to Health
  - Permissible Exposure Limit
  - Assessment of Risk To Health
  - Actions to Control Exposure
  - Labeling and Re-Labeling
  - Information, Instruction and Training
  - Monitoring of Exposure at the place of work
  - Health Surveillance
  - Medical Removal Protection
  - Warning Sign
  - Records Keeping
Methodology

3. Self assessment:

- Checklists are distributed to participating plants for self assessment
  - Objective:
    - to get commitment from plant people (preparation before actual assessment)
    - to check level of awareness on regulatory requirements

- Results compiled by corporate team
Methodology

4. Assessment by corporate team:
   • Team comprises:
     • industrial hygienist (IH) & occupational health doctors (OHD) from corporate (HQ)
     • occupational health executives from other plants
   • Kick off meeting with plant’s management team
   • Review of relevant documents
   • Plant visit
   • Discussion with relevant departments on findings
   • Presentation and discussion with top management team on findings and recommendations
Noise Regulations Compliance Assessment

Findings:

- Main strengths:
  - Initial noise monitoring
  - Audiometric test
  - Noise warning signs
  - Engineering controls
  - Noise boundary line (best practice)
Noise Regulations Compliance Assessment

Findings:

- Main areas for improvement:
  - Additional noise monitoring
  - Training
  - Hearing protection devices (HPD) procedures
Analysis of findings:

- Problems:
  - Lack of monitoring of any changes in design, equipment, process, etc.
  - Important elements have been left out in noise awareness training and HPD procedures
  - Workers with abnormal audiogram were unaware of baseline and current results
Noise Regulations Compliance Assessment

- Analysis of findings:
  - Identified causes:
    - Lack of technical resources (e.g. equipment, competent personnel)
    - No standardization of training materials
    - HPD procedures are too generic
    - Non-compliance to dissemination of audiogram results procedures
Noise Regulations Compliance Assessment

- Improvement Programs:
  - Group noise awareness training
  - Standardizing audiogram format
  - Development of technical resources
  - Detailed HPD procedures
Noise Regulations Compliance Assessment

- Group noise awareness training
  - Objective: to provide plants with standard training materials that include all important elements (customized where necessary)
  - Developed by a team comprising IH & OHD from HQ and various plants
  - Training of in-house trainers from plants
  - Implementation of in-house training
Noise Regulations Compliance Assessment

- Standardizing audiogram format:
  - Objective:
    - to streamline the recording of audiogram by PETRONAS’ OHD
    - to ensure results are communicated to workers accordingly
  - Format has been developed and implemented by OHD
Noise Regulations Compliance Assessment

- Development of technical resources:
  - Aim: to establish enough resources for in-house monitoring
    - selected staffs are trained and registered with DOSH
    - ensure the availability of noise dosimeters and sound level meters at plant
    - establishment of regional IH & OHD advisors
Noise Regulations Compliance Assessment

- Detailed HPD procedures:
  - Objective: to develop detailed HPD procedures, customized according to each plant
  - Important elements:
    - Selection of proper HPD
    - Issuance of HPD to appropriate workers
    - Maintenance of HPD
Hazardous Chemicals Regulations Compliance Assessment

Findings:

- Main strengths:
  - Risk assessment
  - Record keeping
Hazardous Chemicals Regulations Compliance Assessment

Findings:
- Areas for improvement:
  - Material safety data sheet (MSDS) system
  - Chemical monitoring
  - Training
  - Local exhaust ventilation (LEV) testing
  - Labeling
  - Medical surveillance
Hazardous Chemicals Regulations Compliance Assessment

Analysis of main findings:

- Problems:
  - MSDS and labeling of chemicals do not comply with regulatory requirements
  - Lack of implementation of mandatory chemical monitoring, LEV testing and medical surveillance
  - Important elements have been left out in chemical handling training
Analysis of main findings:

- Identified causes:
  - Improper system to ensure supplied chemicals come with proper MSDS and labels
  - Lack of technical resources for chemical monitoring, LEV testing and medical surveillance
  - Improper chemical risk assessment
  - No standardization of training materials
Hazardous Chemicals Regulations Compliance Assessment

- Improvement programs:
  - Risk assessment review
  - Development of technical resources (i.e. competent personnel and equipment)
  - Group safe handling of chemical training
  - Supply/purchase agreement with suppliers
  - Online chemical database
Hazardous Chemicals Regulations Compliance Assessment

- Risk assessment review
  - Refresher training for competent persons on proper and standard risk assessment techniques
  - Review and recommend practical improvement to the previous risk assessment, with the assistance of the regional IH and OHD advisors
Hazardous Chemicals Regulations Compliance Assessment

- Development of technical resources:
  - Selected staffs are trained and registered with DOSH for both chemical monitoring and LEV testing
  - Ensure the availability of monitoring equipment (e.g. low and high flow sampling pumps, anemometer)
  - Establishment of regional IH and OHD advisors
Hazardous Chemicals Regulations
Compliance Assessment

- Group safe handling of chemical training:
  - Development of training materials by a team comprising IH & OHD from HQ and various plants
  - Training of in-house trainers from plants
  - Implementation of in-house training
Hazardous Chemicals Regulations Compliance Assessment

- Supply/purchase agreement with suppliers:
  - Incorporate clause on the responsibilities of suppliers to include proper MSDS and labels
  - Plants have the right to reject chemicals
Hazardous Chemicals Regulations Compliance Assessment

- Online chemical database:
  - Development of chemical database software, accessible to all plants
  - All products and supplied chemicals are to be included into database
  - Easy printing of complete dual-language MSDS and labels
  - Chemical management based on process area
    - Categorizes risk area
    - Responsibility lies with each area owner
Noise & USECHH Regulations Compliance Assessment

Next steps:

• Continuous tracking of improvement program status
• Measure effectiveness (re-assessment)
• Wider scope (e.g. Joint Ventures and International Operations)
Summary

- Noise and hazardous chemicals exposures are significant to PETRONAS’ operations.
- Compliance to related regulations is vital to protect workers’ health & safety, and business interests.
- Noise & hazardous chemicals regulations assessment provides effective platform to strive for further improvement.
THANK YOU

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