

<p><b>KLM Technology Group Sdn. Bhd.</b></p>	<table border="1"> <tr> <td data-bbox="636 130 841 226"> <p><b>KLM</b></p> </td> <td data-bbox="847 130 1117 226"> <p><b>Technology Group</b></p> </td> </tr> </table> <p><b>Practical Engineering Guidelines for Processing Plant Solutions</b></p>	<p><b>KLM</b></p>	<p><b>Technology Group</b></p>	<p>Page 1 of 7</p>
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## **Guidelines for Management of Shutdowns and Turnarounds**

The success of every company depends of each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development is an investment in future success - give yourself and your employees the keys to success

It is strategically important that your operations and maintenance teams understand the fundamentals of process unit shutdown, turn around management concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is very beneficial in closing the gap if you are not in the best quartile, or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operations and maintenance principles is the most effective way to obtain the desired results. Training and learning should be an on going continuous life long goal.

### **Course Objective**

This course will guide the participates to develop key concepts and techniques for management of shutdowns and turnarounds of unit operation systems. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of operations and maintenance can be improved including, turnaround time, cost and safety. This cannot be achieved without first an understanding of basic fundamental principles of project management and planning. These principles need to be understood in advance of implementation for the operator maintenance man for problem solving to be effective.

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## Outline

### Day One

#### Introduction

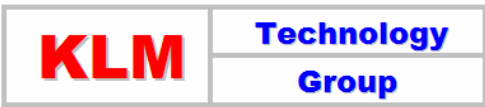
- Overview of the Chemical Processing Industry

#### Review of Process Incidents

- Safety for the Operation and Maintenance Groups

#### Introduction to Turnaround Planning

- Why is a turnaround needed
- When a turnaround is needed
- Turnarounds as a part of Asset Life Cycle
- Industry Best Practices in Turnaround Planning
  - Preventative Maintenance
  - Periodic Maintenance
  - Predicative Maintenance
- Planning Turnaround Scope
- Critical Path
- Work Scope – In House verses Out Source
- Risk Management

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## Day 2

### Turnaround Management as Project Management

- Introduction to Project Management Guidelines for Turnaround Management
  - Organization
  - Planning
  - Contractors
  - Cost
  - Execution
- Setting the objectives and scope
- Project Communication Guidelines
- Project Risk Management
- Project Contingency Planning
- Project Time Management – Flow Charting
- Balancing Technical, Mechanical, and Time Constraints

### Managing Turnaround Contracts

- Introduction to Contracts
  - Lump Sum Turn Key
  - Reimbursable
  - Unit rates
- Setting the Deliverables – defining priorities
- Setting the Timing with rewards and penalties
- Setting a performance based contract that aligns turnaround objectives with remuneration

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### Day 3 – Turnaround Safety

#### Review of Hazard Analysis Techniques

- Hazard Identification
  - energy sources
  - electrical sources
  - chemical sources
- Case Study on Hazard Identification
- HAZOP System Methods
- Root Cause Analysis Methods
- Case Study on Root Cause Analysis
- Incident Investigation

#### Troubleshooting Guidelines

- Problem Analysis
- Troubleshooting Techniques

## Day 4

### Safe Equipment Isolation Guidelines

- General Hazardous Work Guidelines
- Line Breaking Guidelines
- Vessel Opening Guidelines
- Confined Spaces Guidelines
- Excavation Guidelines
- Electrical Guidelines
- TLV – Threshold Limit Values
- Case Study on Isolation Systems

### Safe Equipment Isolation Industry Standards

- Examples of Industry Standards Guidelines
- Examples of Industry Standard Labels

### Personnel Issues

- Over coming Project People Stress during Unit Down Time
- Contractor Assessment
- Personnel Skill Assessment
  - Identify Skill Set need for each position

### Post Turnaround Assessment

- Plant Safely Re-Commissioned
- Cost Assessment
- Capture Inspection Reports
- Plant Reliability
- Manage future unplanned outages

### Conclusions

- Who is the Captain of Your Ship?
- Building Safety Awareness

### Who Should Attend:

- People who are making day to day decisions regarding operation, maintenances, design, and economics of processing plants;
  1. Operation Supervisors,
  2. Maintenance Supervisors,
  3. Senior Plant Supervisors,
  4. Operations Engineers
  5. Process Support Engineers,
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter

**What you can expect to gain:**

- The Turn Around Fundamentals
- Guidelines for Turnaround Planning
- Project Management Guidelines
- Hazard Analysis Techniques
- Safe Isolation Guidelines
- Industry Best Practices