TOWARD PLANT RELIABILITY – Awareness for the Tradesperson

SUMMARY

This Awareness course is for trade persons who strip machinery, overhaul and re-install it, and return it to production. It provides a context for the concepts of condition monitoring, reliability and precision skills, and demonstrates the impact of trade techniques upon the vibration condition and reliability of plant and machinery.

These are the elements that characterise the relatively few successful programmes where the results show in reliability and the maintenance budget. Regardless of the policies and programmes put forward from the top, these results can only be as good and effective as the tradesperson who works on the plant.

DURATION OF SEMINAR

The seminar is 4 days (2 x two days) and run on-site but this may be adapted to suit the circumstances of attendees, such as shift workers. Frequently it is necessary to run at least two seminars to provide for ongoing plant coverage.

A reduced version of 2 days is possible for electrical fitters who do not require the same level of input on issues such as alignment, fits and tolerances.

WHO SHOULD ATTEND

Mechanical and electrical fitters employed in the maintenance of plant and those at the first level of supervision, particularly where this supervision may involve contractors similarly employed.

OUTCOMES SOUGHT

To understand the contribution they can make toward improved plant reliability and maintenance costs through:

- Plant wide application of precision trade skills to appropriate standards
- Understanding the context of condition based maintenance
- Appreciation of causes of vibration in plant and affects on plant life
COURSE CONTENT

1. **Towards Reliability**
   - Maintenance and its Management
   - Maintenance Methodologies and their Balanced Application
   - Condition Monitoring in the Context of Reliability Improvement

2. **Vibration Measurement & Analysis**
   - Measurable Parameters in Dynamic Systems
   - The Technology of Vibration Measurement and Analysis
   - Vibration Measurement Applied to Condition Monitoring
   - Vibration Analysis for Fault Diagnosis
   - Vibration Reporting

3. **Condition Monitoring Technologies**
   - Using Thermography for Rotating Machinery Monitoring
   - Oil Condition and Wear Debris Analysis
   - NDT applied to Condition Monitoring
   - Performance Monitoring of Machines and Systems

4. **Rolling Element Bearings**
   - Bearing Failure Processes
   - Rolling Element Bearing Condition Assessment

5. **Maintenance Systems**
   - Maintenance Planning based on CM Reports
   - Managing Condition Monitoring for Reliability Improvement.
   - Standards for Machinery Acceptance Testing and Balancing
   - QA. Development of Procedures and Work Instructions
   - QA. Developing and Implementing Workshop/Contractor Standards

6. **Failure Processes and Identification of Cause**
   - The failure processes in machinery and systems
   - Obtaining data to identify cause of failure.
   - Root Cause Analysis

7. **Precision Maintenance;**
   - The Justification for use of Precision Skills plant wide
   - Skills Development for Tradespersons
   - Machine Overhaul – Fits and Tolerances
   - Balancing
   - Alignment, preparation and procedures
   - Implementing Precision Maintenance for Maximum Cost-Benefit
   - Measuring the Benefits of a Precision Maintenance Programme