Day 1 – Success with Root Cause Failure Analysis (RCFA)

- The Purpose and Use of RCFA
  - Applying RCFA in Operations and Maintenance
  - Establish A Reliability Improvement Process in Your Business Management System
  - Evidence Gathering and Data Analysis
  - Activity 1 - Study of an RCFA and the RCFA process

- The True Causes of Failure
  - Understanding Failure and Error
    - Defect Creation
    - Physics of Failure
    - Human Factors
    - Life Cycle Gaps
  - Hidden Failures
    - Latent Beliefs and Values
    - Common and Special Causes of Failure

- Production Plant and Equipment Failure
  - What Reliability Engineering Tells Us about Failure
  - Reliability of Series Processes
    - Machinery
    - Work Activities
    - Production Plants

- A Range of Root Cause Failure Analysis Tools
  - Types of Failure Analysis
    - Creative Disassembly
    - 5/7 Whys/RCFA
    - Risk Analysis
  - Collecting Evidence
    - At Failure Site
    - Historical Records
    - Operating Records
  - The 7 Quality Control Tools for Data Analysis
  - Selecting the Data Analysis Tools

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• Shopfloor Level
  • ‘5 Whys’ Method
  • Case Study – 5 Why Example

• Equipment Level
  • Activity 2 – ‘Is-Is Not’ Table
  • Failure Modes and Effects Analysis (FMEA)
  • FMEA at System Level and Component Level
  • Activity 3 – Apply FMEA at Component Level

• Process Level
  • Flow Mapping of the Process
  • Fault Tree Analysis

• Guided Application of an RCFA
  • Activity 4 – Conduct/Review an RCFA into a chemical reactor wall failure and open Discussion

Day 2 – Using RCFA to Improve Plant and Equipment Reliability

• The RCFA Team and Team Facilitator
  • Role of the Facilitator
  • Team Dynamics
  • Running the RCFA Meeting
  • Cooperation Techniques
  • Using the Six Hats for New Perspectives
  • Facilitation Technique

• Making Failure Elimination Part of Normal Business
  • Review Failure Elimination Process
  • Activity 5 – Groups of Attendees Do RCFA and develop Failure Elimination Solution

• Practice a Creative Disassembly
  • Creative Disassembly
  • Review Creative Disassembly and open discussion
  • Activity 6 – Groups of Attendees conduct a Creative Disassembly

• Practice a 5/7 Whys Analysis
  • Review the 5 Why process and open discussion
  • Activity 7 – Groups of Attendees conduct longer 5 Why using the full method

• Practice an RCFA
  • Review the RCFA process and open discussion
  • Review Failure Analysis Tools
  • Activity 8 – Groups of Attendees conduct longer RCFA using the full method

• Close-out and Finish