

Root Cause Analysis (2 or 3 Days)

OPTION I: 2-Day RCA Seminar (training)

This option focuses on training the structured approach to the RCA process.

Participants will be exposed to the process through a case study and discuss how they can use this process on plant specific projects.

During this in-house session, we will challenge the students to apply various RCA tools to known problems within the organization. No teams will be chartered to address these specific problems in this workshop. We will, however, be using these problems to reinforce the learnings of the RCA process.

The seminar is conducted in a classroom setting and can include a diverse participant make-up of up to 20 participants.

The Option I training outline is as follows:

Day 1

Introduction to RCA

- Definition of Root Cause Analysis
- RCA vs RCFA
- Achieving Excellence Through RCA

Framework for RCA

- Level A: Why-Why Analysis
- Level B: Breakthrough
- Level C: DMAIC

RCA Tools

- | | |
|------------------------|--------------------------|
| ➤ Problem Definition | ➤ Process Mapping |
| ➤ Pareto Chart | ➤ Brainstorming |
| ➤ Check Sheets | ➤ Fishbone Diagrams |
| ➤ Run & Control Charts | ➤ 5 Why Analysis |
| ➤ Histograms | ➤ Why/Why Tree Diagram |
| ➤ Scatter Diagrams | ➤ Project Quantification |

Team Concepts

Root Cause Analysis (2 or 3 Days) (cont'd)

Day 2

RCA Candidate Selection Process

Using the DMAIC Process

- Define
- Create Team Charter
- Project Quantification
- Measure
- Create Process Map
- Collect Data on Failure
- Compile Data
- Analyze
- Create Fishbone Diagram
- Conduct 5 Why Analysis/Tree Diagram
- Compile Data & Root Cause Theory
- Improve
- Identify What to Change & What to Change To
- Select Intermediate Solutions
- Develop an Implementation Plan
- Control
- Conduct Risk Assessment
- Leverage Opportunities
- Complete Project Documentation

Root Cause Analysis (2 or 3 Days) (cont'd)

OPTION II: 3-Day RCA (training and hands-on workshop)

This option focuses on training the structured approach to the RCA process and using this process to solve an existing plant performance issue.

Participants will be exposed to the process through structured training exercises and a case study, and then use existing plant-specific data to identify potential root cause project candidates. Through this process they will also identify other data needs and improvements required to address these issues.

The seminar is conducted in both classroom setting (Day 1 and first half of Day 2) and a workshop setting (2nd half Day 2 and Day 3). Participant make-up for workshop portion will be a team or teams made up of subject matter expert(s), engineers, area supervisor(s), area production and maintenance personnel, related to the RCA project.

In this Option, a team will be chartered and begin to address a specific problem within the organization. The Team will be required to visit the equipment site and have access to appropriate materials, data, and personnel. An RCA plan with action items will be left with the participants to allow for completion of the RCA DMAIC process by the chartered team.

A follow-up conference call or consulting day(s) may be scheduled to coach and assess the progress of the team to ensure success (*see fee schedule*).

The Option II outline is as follows:

Day 1

Classroom training & structured exercises (per Option 1 outline)

Day 2

- ▶ Case study review
- ▶ Structured exercises
- ▶ Facilitate group activities to follow RCA process to solve an existing plant performance issue.
 - ◆ Identify top disruption and reliability issue
 - ◆ Determine losses from these disruptions and reliability issue

Root Cause Analysis (2 or 3 Days) (cont'd)

Day 3

Continue RCA process from Day 2

- ◆ Follow structured RCA process to identify root cause for chosen project
- ◆ Develop reliability solutions to eliminate root causes
- ◆ Develop appropriate countermeasures to protect equipment from future potential related or unrelated failures (i.e. PMS, PdM, Visuals, Standards, Work Instructions, etc.)
- ◆ Develop action item list to move project forward
- Facilitate group activities to discuss program implementation & strategy to complete newly formed project
- Facilitate group activities using existing site specific failure analysis process review current projects and analyze projects based on Day 1 training

Customer Responsibilities for Option II:

In order to expedite the RCA process, this workshop will require some prep work from the customer:

- ✓ Historical data must be gathered, available, and detailed to some level to develop first and second level Paretos.
- ✓ Participants must have access to equipment, materials, data, and other personnel familiar with equipment & function.
- ✓ Appropriate team will need to be assembled:
 - ◆ Day 1—classroom training – open (up to 20 ppl)
 - ◆ Day 2 first half—structured exercises & case study – open (same participants from Day 1)
 - ◆ Day 2 second half—RCA workshop participants should be scaled down accordingly (by size and personnel) – RCA Workshop Team (max 8–10 ppl)
 - ◆ Day 3 –RCA Workshop – RCA Workshop Team
 - ◆ Day 3 – End of day - Team Report Out – participants from Day 1 and first half of Day 2 plus leadership
 - Team report-out will be conducted at conclusion of Day 3